Application Note

# How to Set Up Your PC for Android Application Development

## Introduction

Supported Environments: Windows 7 (32/64-bit), Windows Vista (32/64-bit), Windows XP
* This application note was written using a Windows 7 64-bit PC
** Linux/Mac directions on Android Developer site.

Supported Star Interfaces: USB, LAN, WirelessLAN, Bluetooth

Supported Language: Java

Tools Needed:
- JDK 6
- Eclipse
- Android SDK Manager
- ADT (Android Development Tool) Plugin for Eclipse
- USB Windows Driver by Android Device Manufacturer
- Star Android SDK

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## References

:: Developer Resources

Android Developers: http://developer.android.com/index.html
System Requirements for Android Development: http://developer.android.com/sdk/requirements.html
Star Developer Support Section: http://www.starmicronics.com/support/SDKDocumentation.aspx

:: Download Links

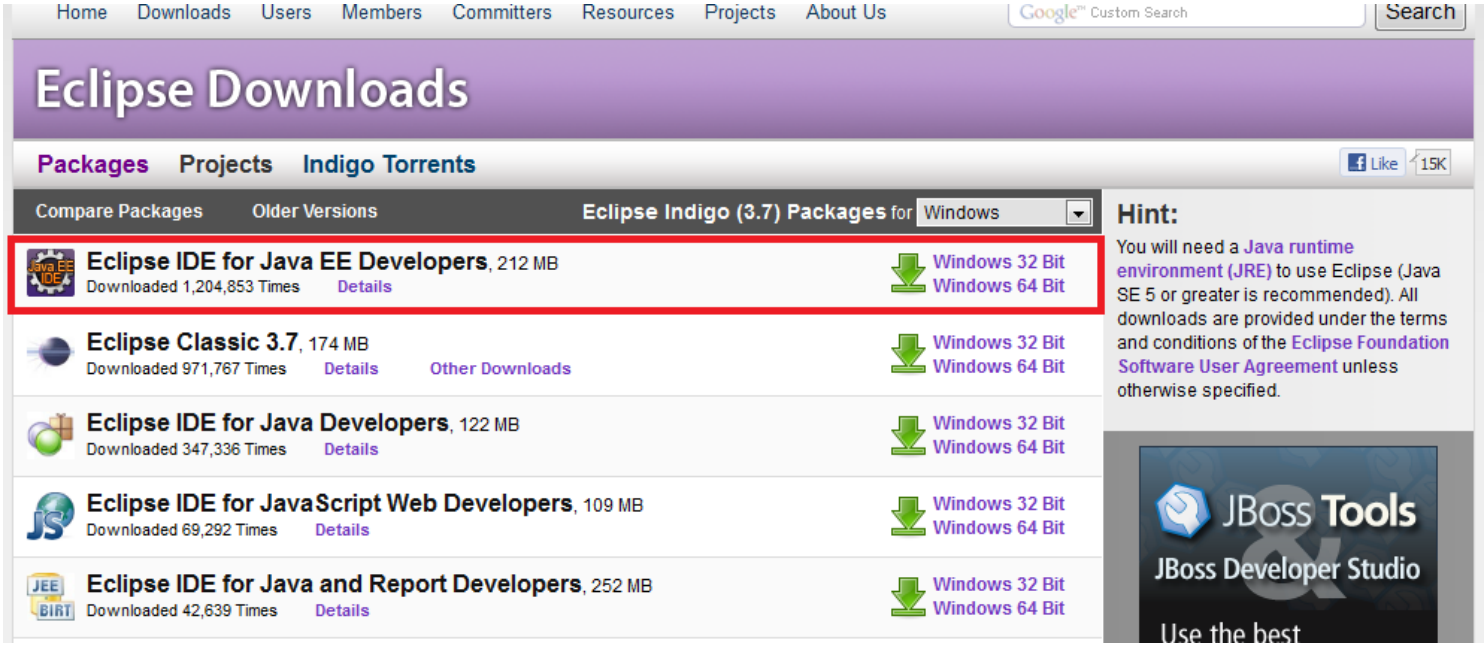
Java Platform (JDK): http://www.oracle.com/technetwork/java/javase/downloads/index.html
Eclipse: http://www.eclipse.org/downloads/
Android SDK Manager: http://developer.android.com/sdk/index.html
Android ADT: http://developer.android.com/sdk/eclipse-adt.html#installing
OEM USB Driver List: http://developer.android.com/sdk/oem-usb.html

## I. Download/Install JDK



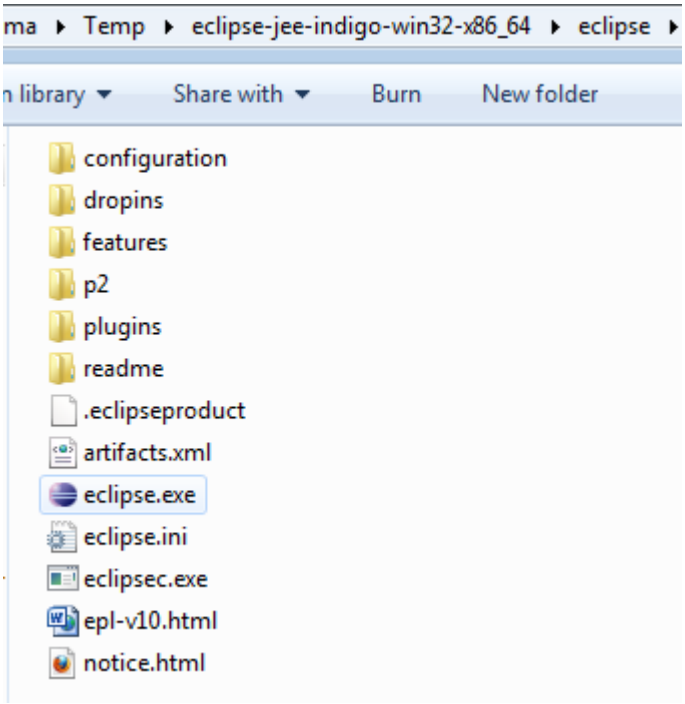

1. Download Java SE 6 JDK here: http://www.oracle.com/technetwork/java/javase/downloads/index.html
Notes:
JRE alone is not enough. To use Android SDK Manager, you must have JDK installed.
At the time of this writing, it is recommended to use the Java SE 6 JDK, as stated in the Supported Development Environments section from the Android Developers site: http://developer.android.com/sdk/requirements.html

## II. Download/Run Eclipse

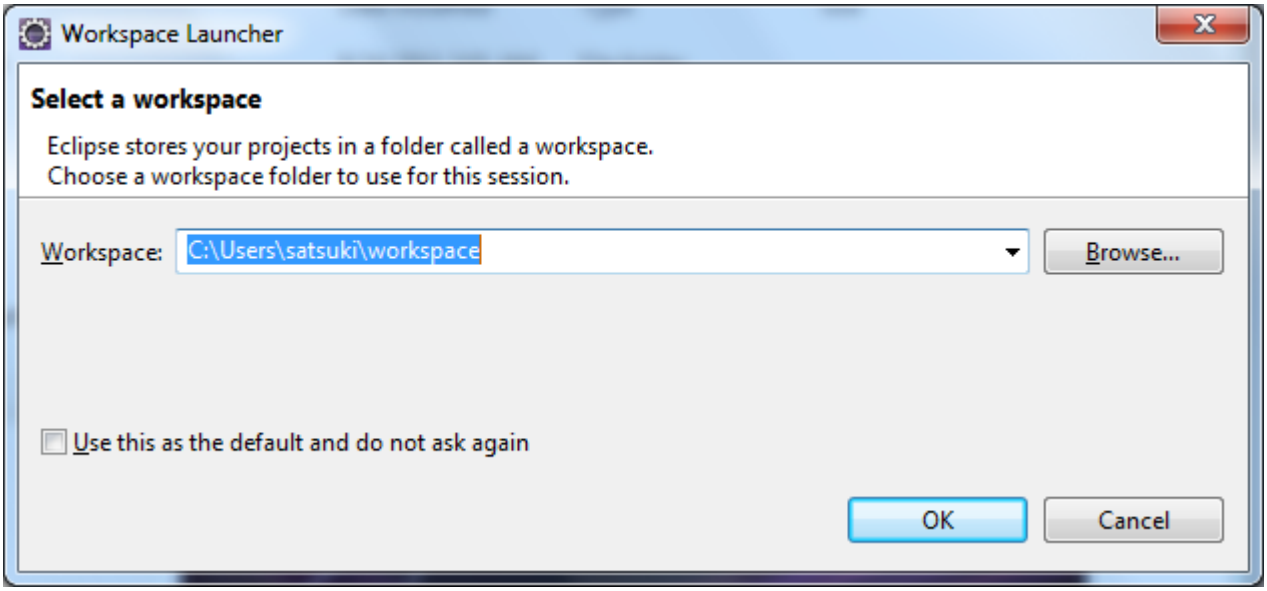



1. Download Eclipse here: http://www.eclipse.org/downloads/

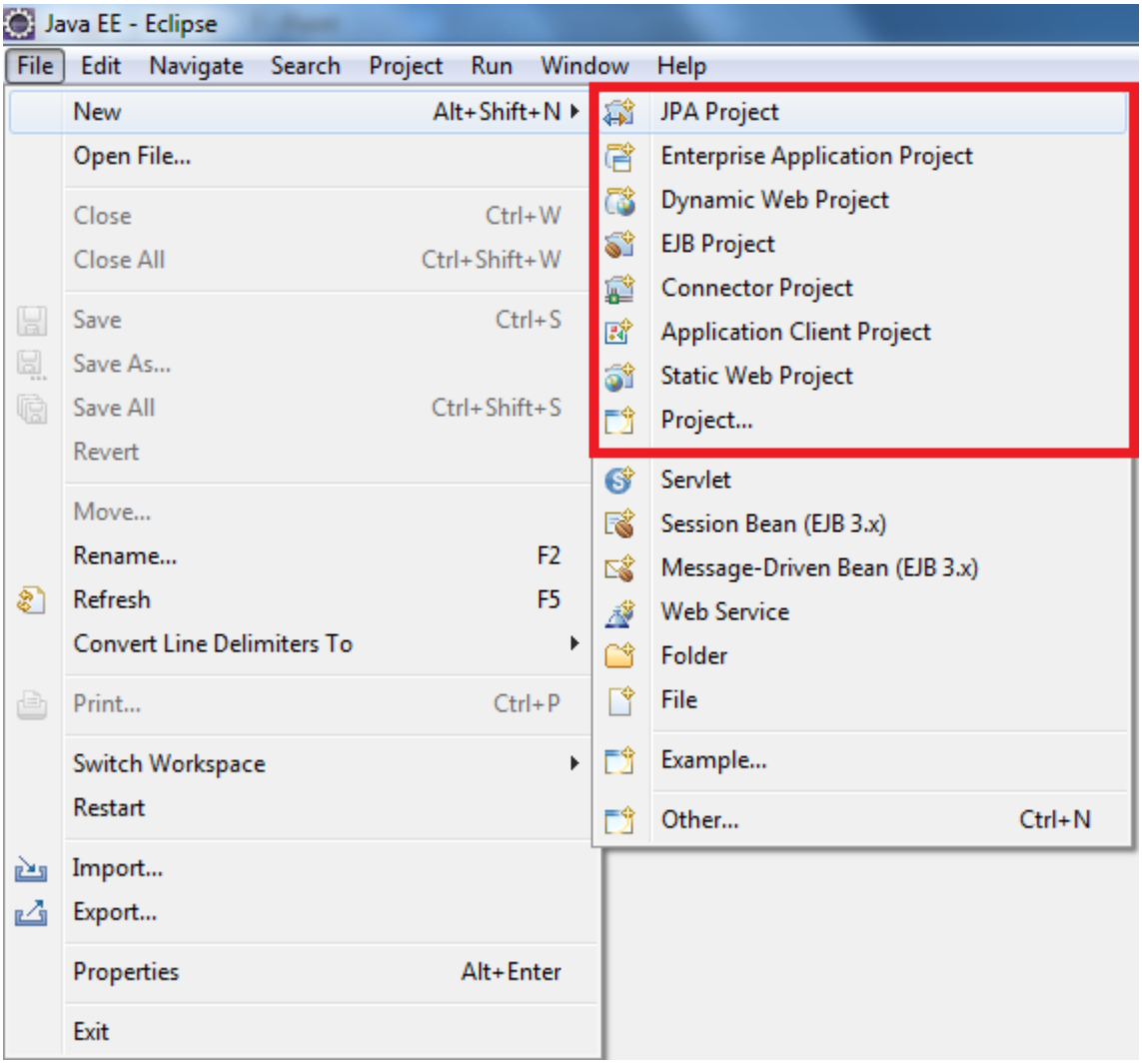
2. Unzip package.




3. The unzipped folder includes “eclipse.exe”. Eclipse doesn’t need to be installed on PC to run; simply double click the file.




4. OK




5. If you run Eclipse before installing Android SDK components, you cannot build or run Android applications. You can confirm this point by clicking File > New > Project. “Android Project” will not be listed.

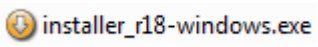
6. Exit Eclipse.

## III. Download/Install Android SDK Manager

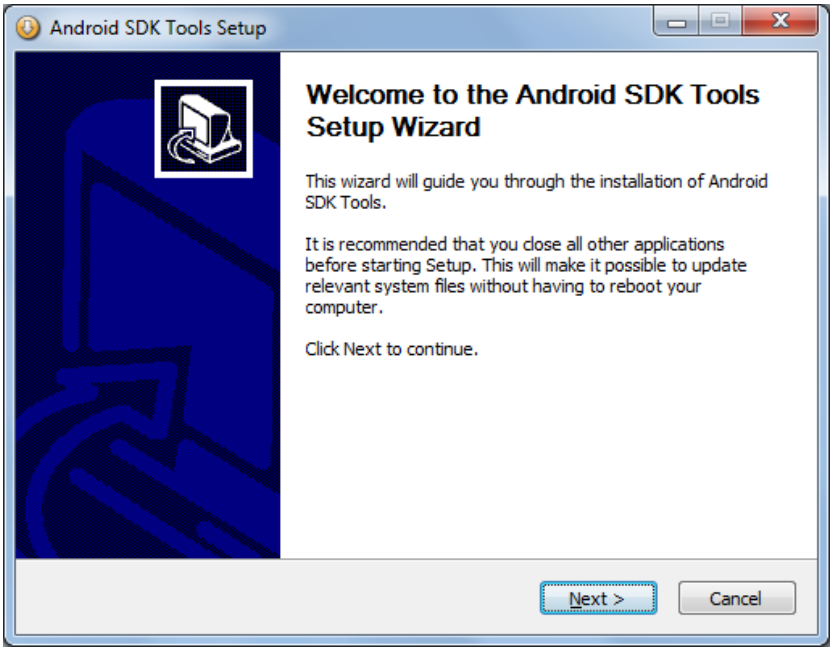
Important Notes Before Starting:
A. Always use the latest SDK. This manual may not always have the latest information since the Android SDKs are managed on a website that is not affiliated with Star Micronics.
B. Always run Android SDK Manager as administrator in Windows 7/Vista. (If not, some packages might not download.)
C. Android SDK Manager is necessary to download any official Android platforms, SDKs, and samples. You can use this tool to update or install more packages in the future.

| Platform | Package | Size | MD5 Checksum |
|---|---|---|---|
| Windows | android-sdk_r18-windows.zip | 37448775 bytes | bfbfdf8b2d0fdecc2a621544d706fa98 |
| | installer_r18-windows.exe (Recommended) | 37456234 bytes | 48b1fe7b431afe6b9c8a992bf75dd898 |
| Mac OS X (intel) | android-sdk_r18-macosx.zip | 33903758 bytes | 8328e8a5531c9d6f6f1a0261cb97af36 |
| Linux (i386) | android-sdk_r18-linux.tgz | 29731463 bytes | 6cd716d0e04624b865ffed3c25b3485c |

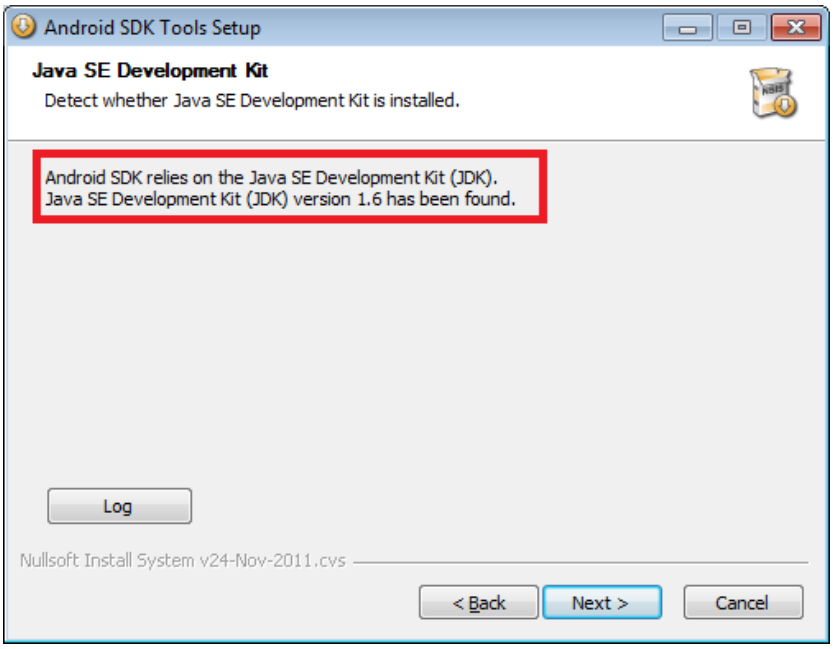
1. Download the .exe file for first time installations. (If you want to update an existing file, you only need to download the .zip.) http://developer.android.com/sdk/index.html



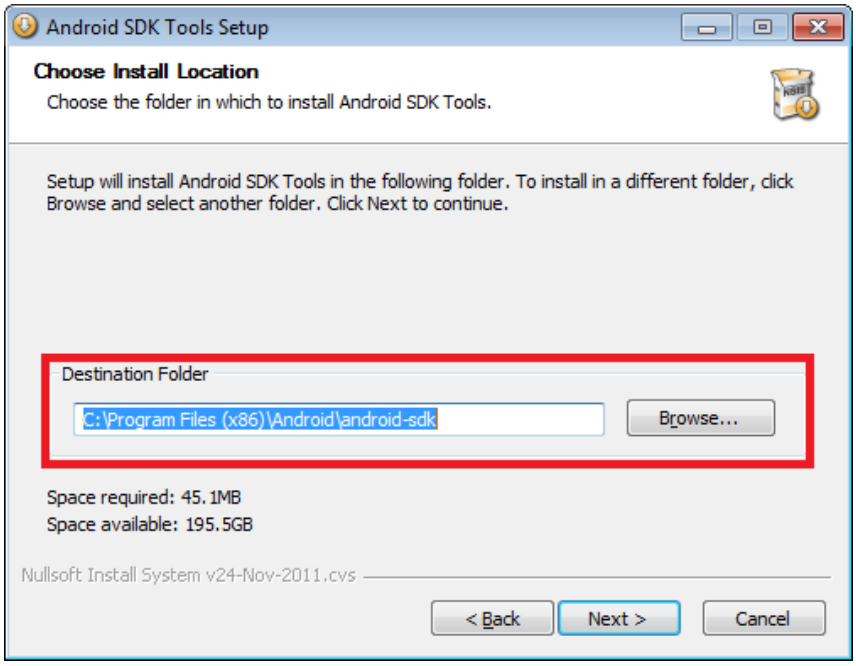

2. Run the Installer.




3. Next

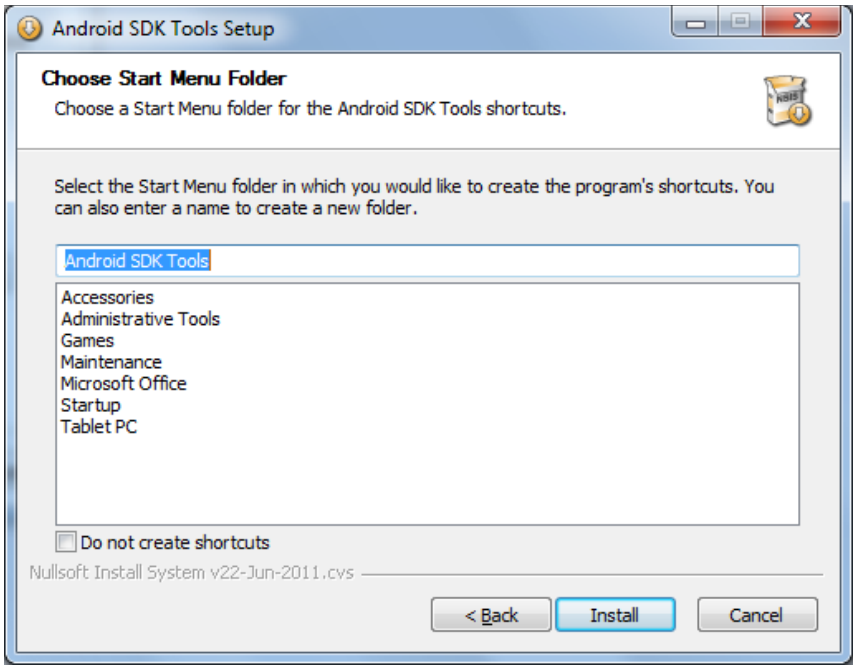



4. Next (If JDK is not installed, you will be informed here.)

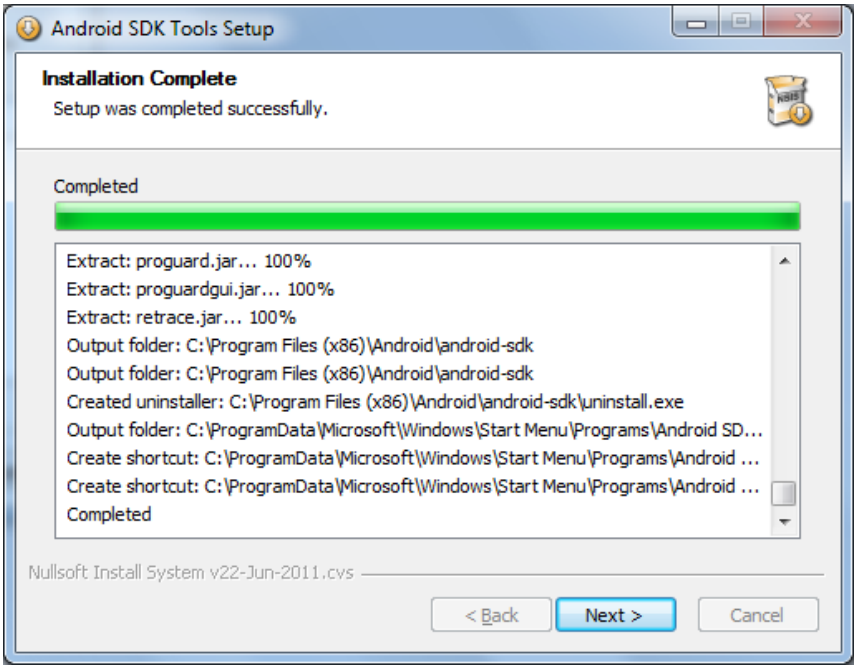



5. Install in the location of your choice.

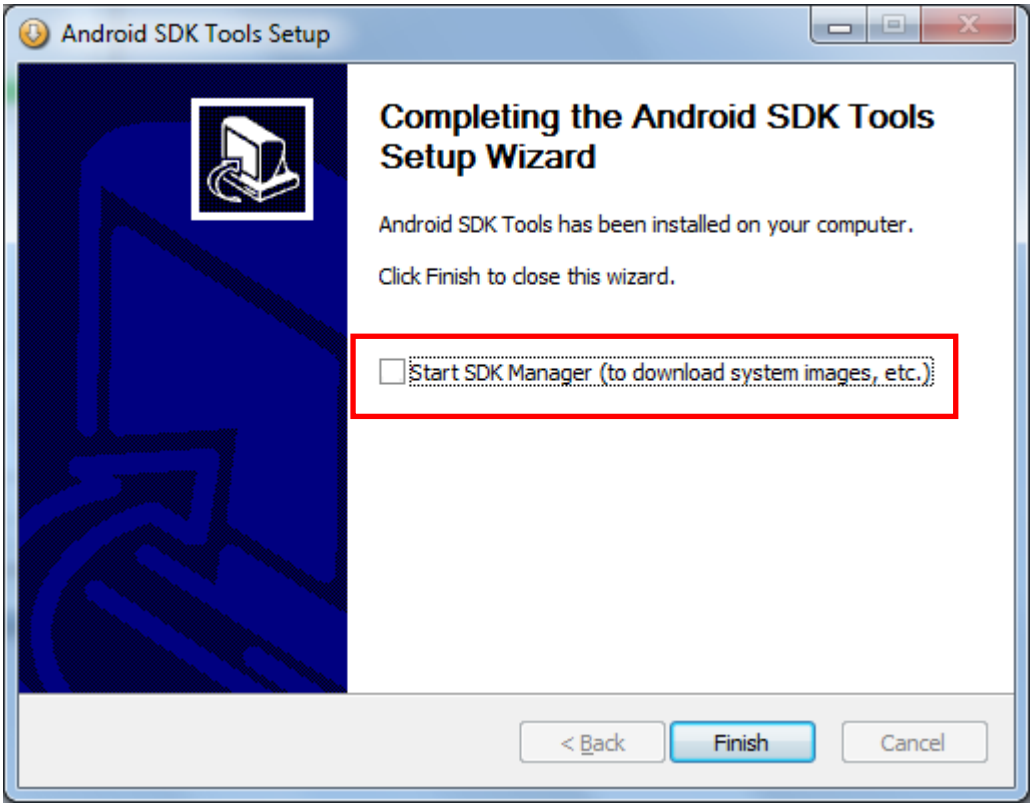
Note: r12 and earlier had a known bug where an application would not run if Android SDK packages were installed in a folder with spaces. If you are installing an older version, create a new folder with no spaces and install there, such as C:\Android; this bug was fixed from r13.




6. Install

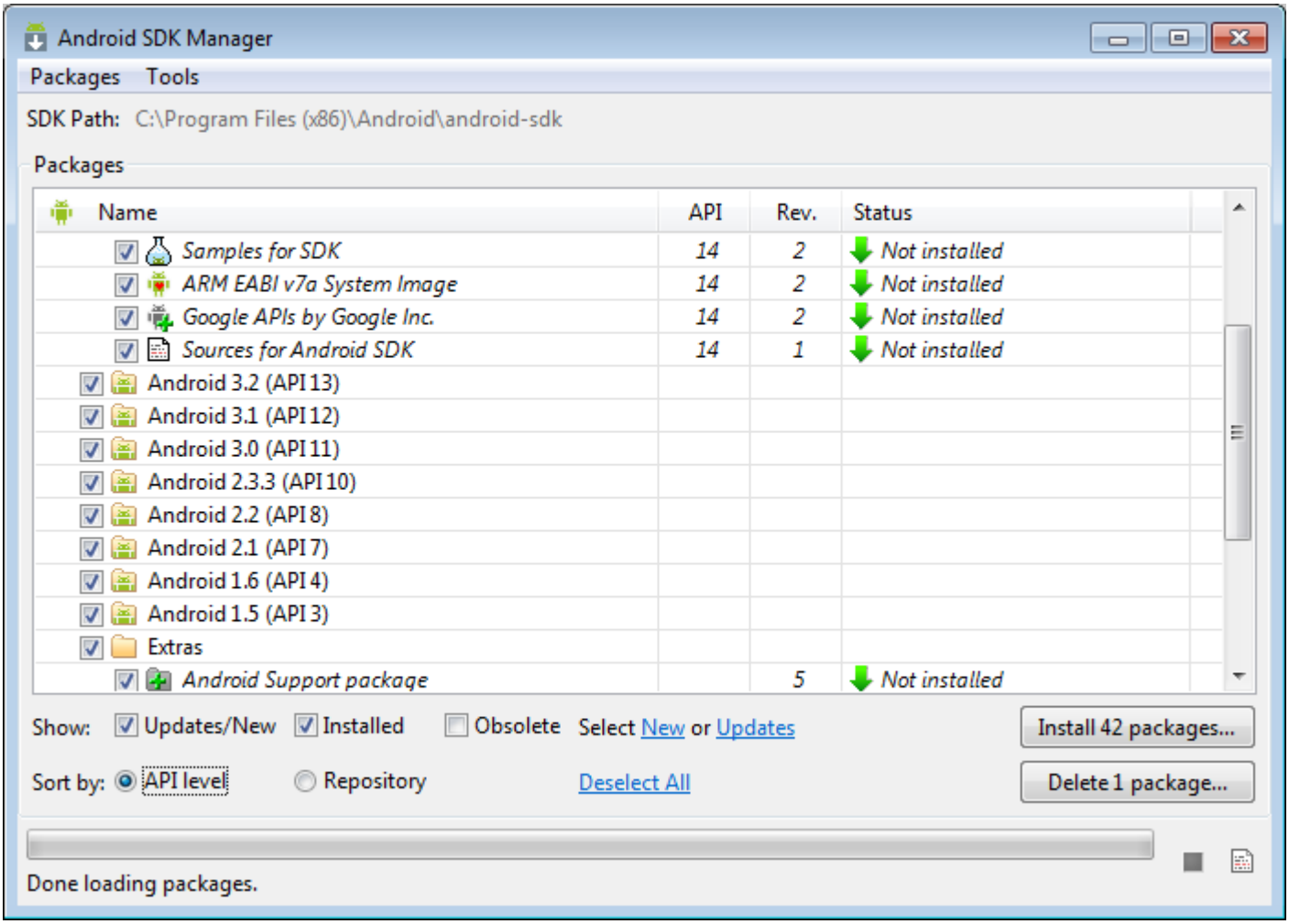



7. Next




8. Uncheck the box to “Start SDK Manager”. Finish.

9. Start Menu > Android SDK Tools > Right click “Android SDK Manager” > Run as administrator (Very important. If you don’t run as administrator, some packages will not download.)



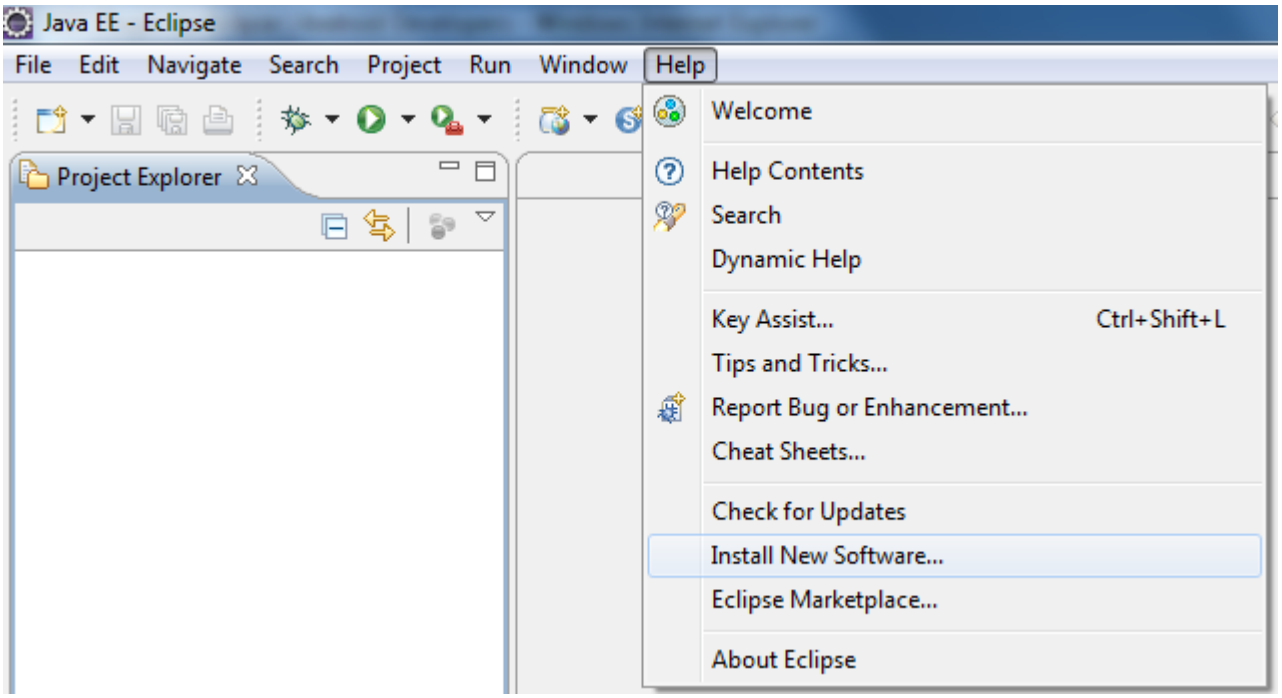

10. Choose the package(s) you wish to install and click “Install n packages…”.

Note: Star’s Android SDK supports a minimum version of 2.1 (API 7).

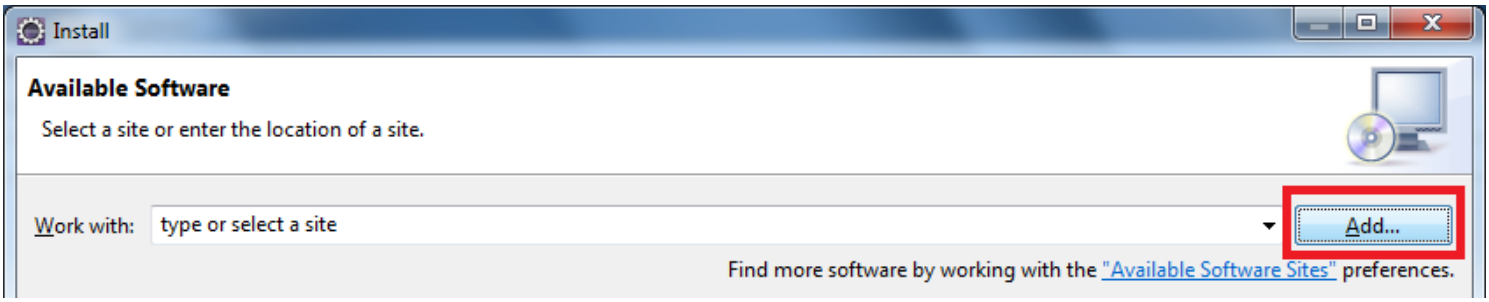
## IV. Download/Install ADT Plugin

Note: ADT = Android Development Tools. Installing them enables Eclipse to create/build/etc Android applications.

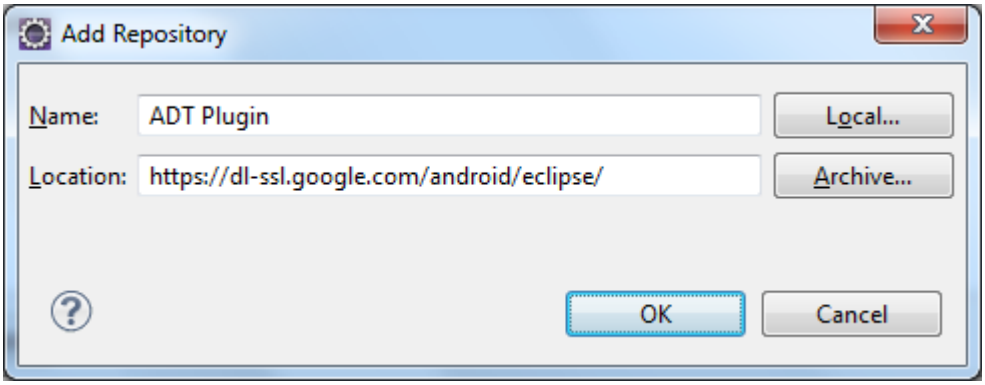
1. Open Eclipse.



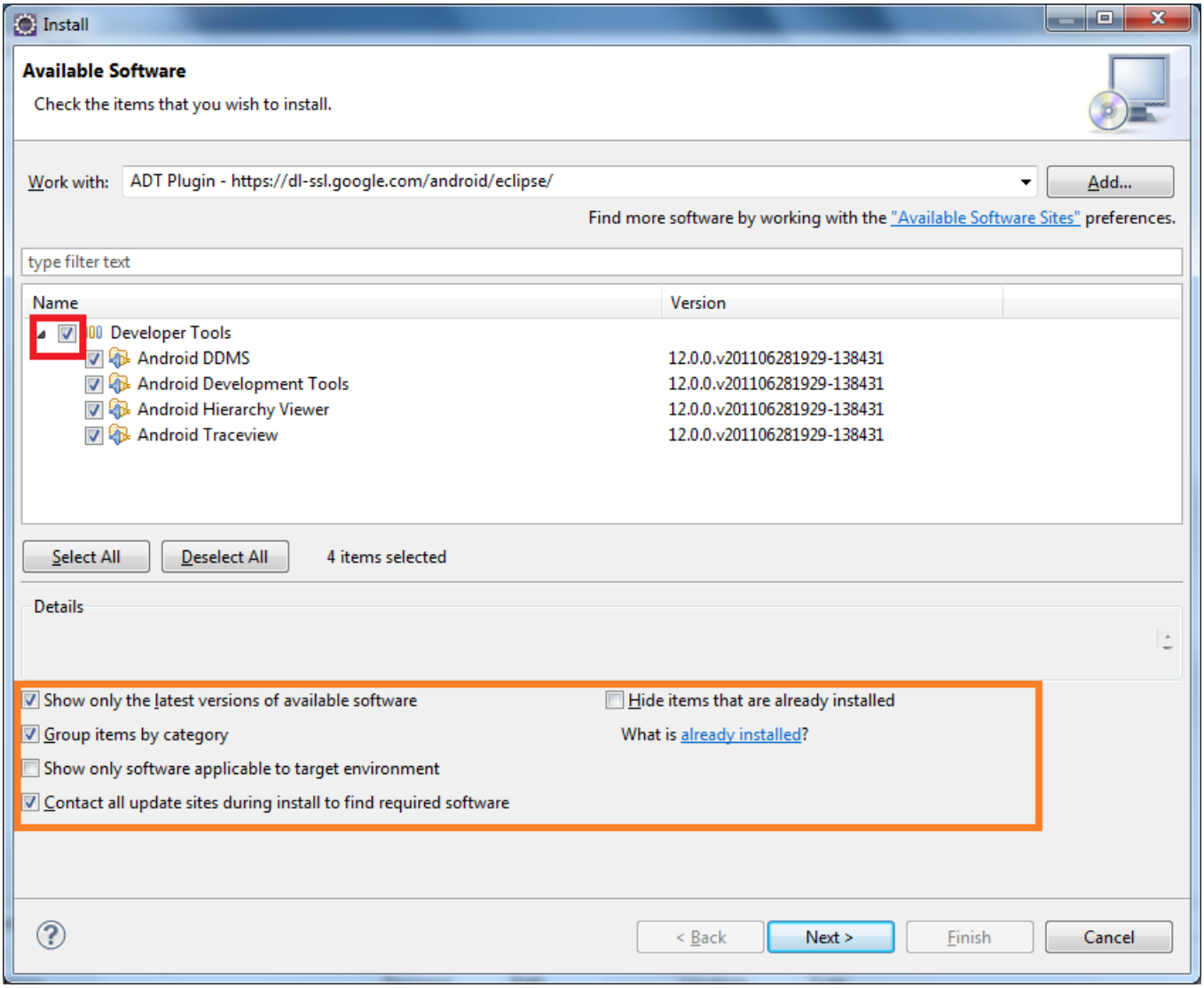

2. Click Help > Install New Software



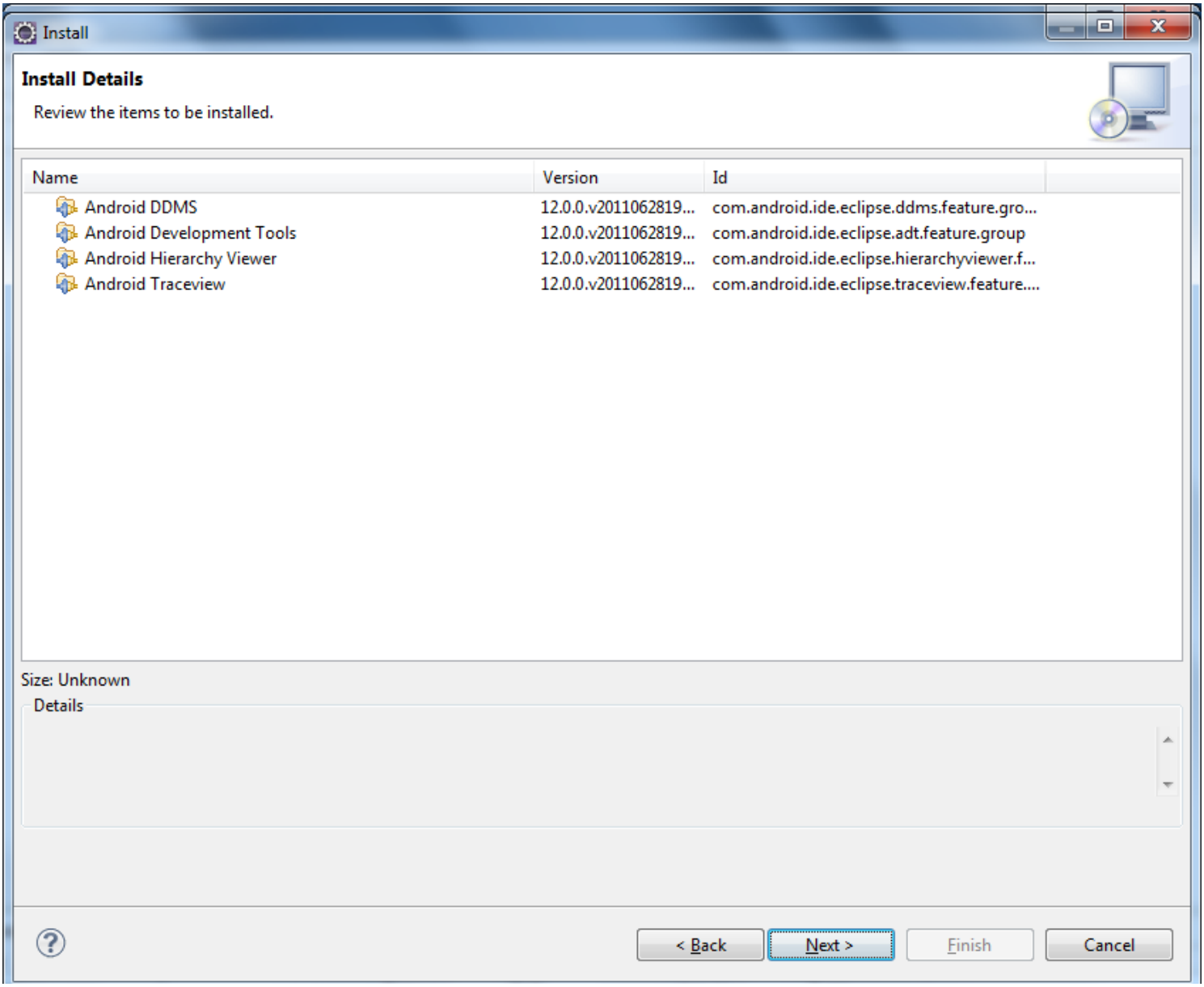

3. Add



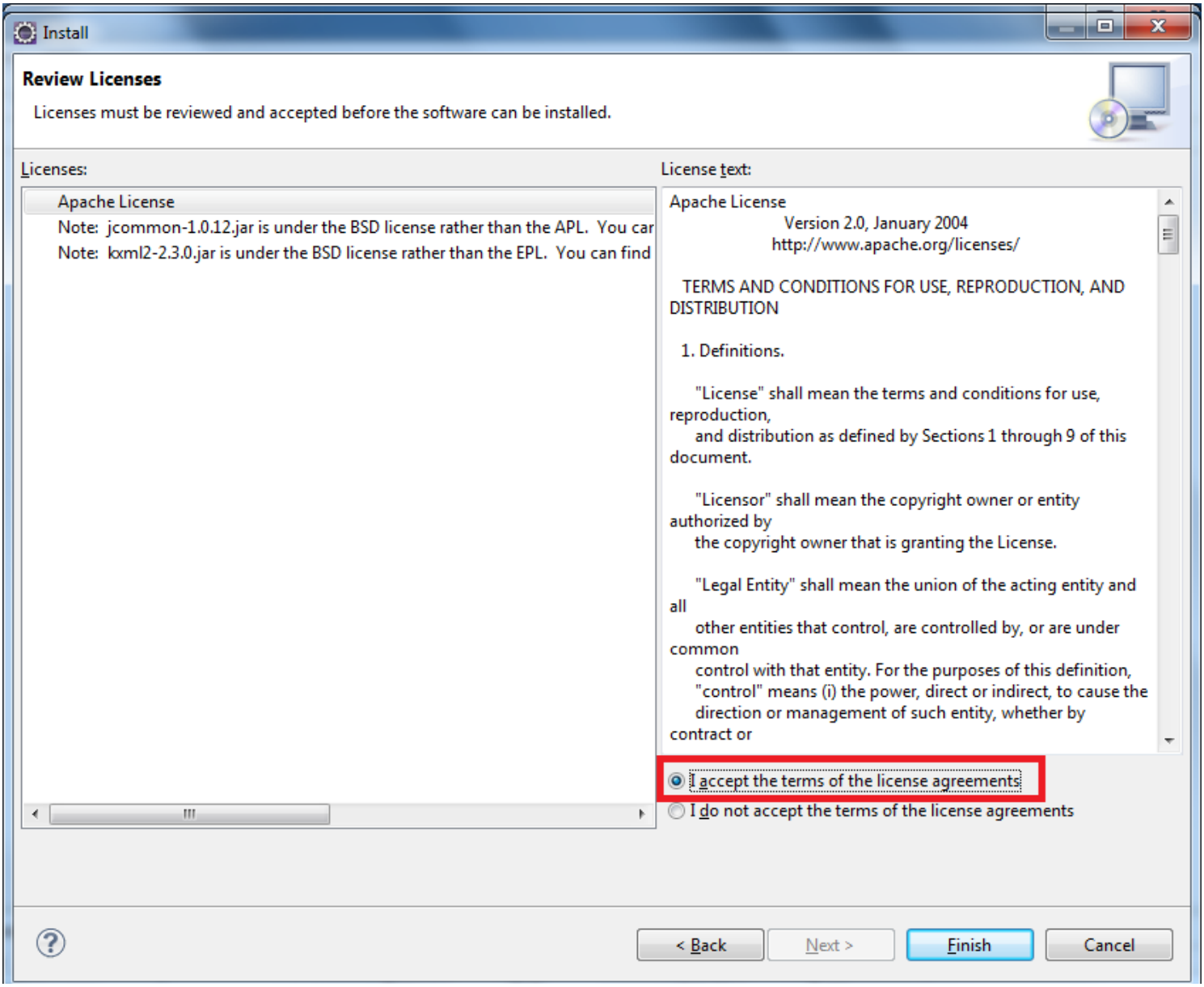

4. Type “ADT Plugin” as name. Copy/Paste this URL into Location: https://dl-ssl.google.com/android/eclipse/



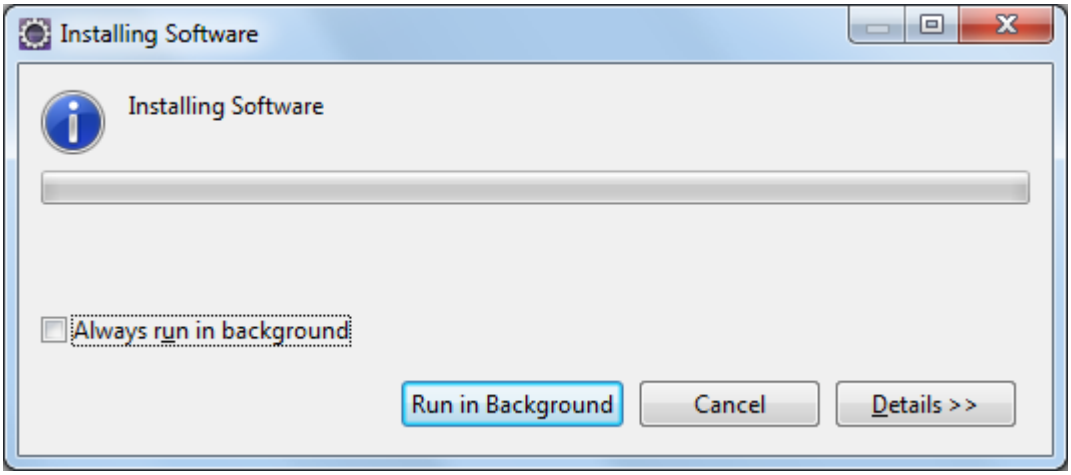

5. Check “Developer Tools”. You don’t need to modify anything in the orange box. Click Next.
Troubleshooting: If you get an error when you try to download, click here.


Install
Install Details
Review the items to be installed.
Name
Version
Id
Android DDMS
12.0.0.v2011062819...
com.android.ide.eclipse.ddms.feature.gro...
Android Development Tools
12.0.0.v2011062819...
com.android.ide.eclipse.adt.feature.group
Android Hierarchy Viewer
12.0.0.v2011062819...
com.android.ide.eclipse.hierarchyviewer.f...
Android Traceview
12.0.0.v2011062819...
com.android.ide.eclipse.traceview.feature....
Size: Unknown
Details
< Back
Next >
Finish
Cancel

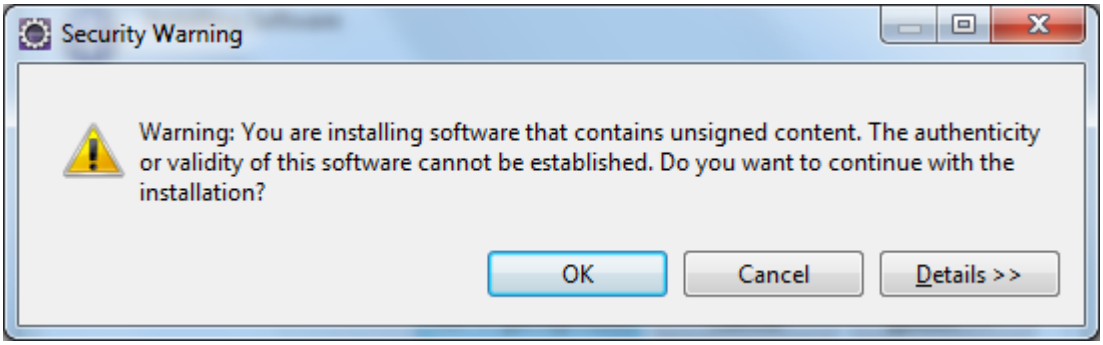
6. Next



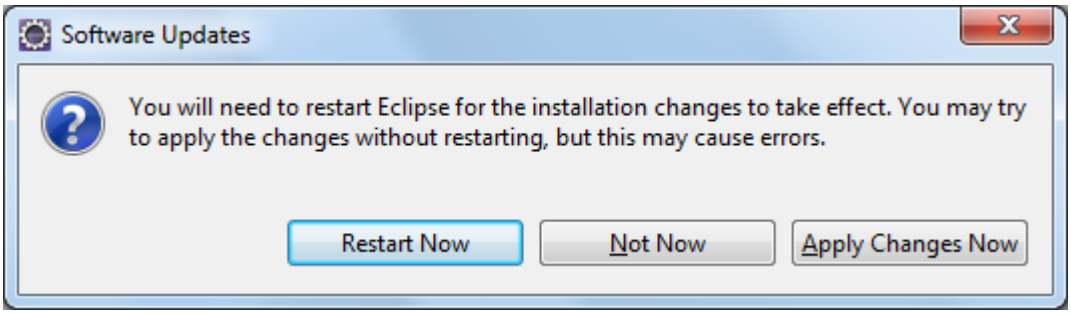

7. Check “I accept”. Finish.



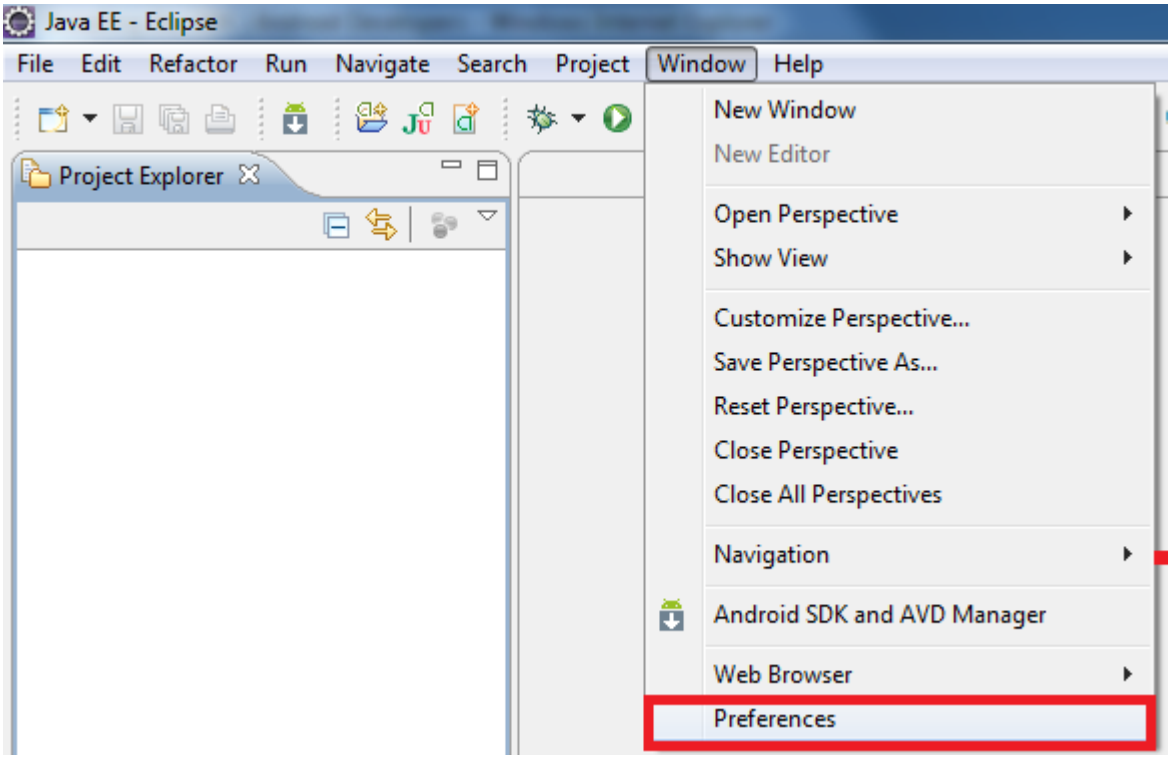

8. Installation starts.



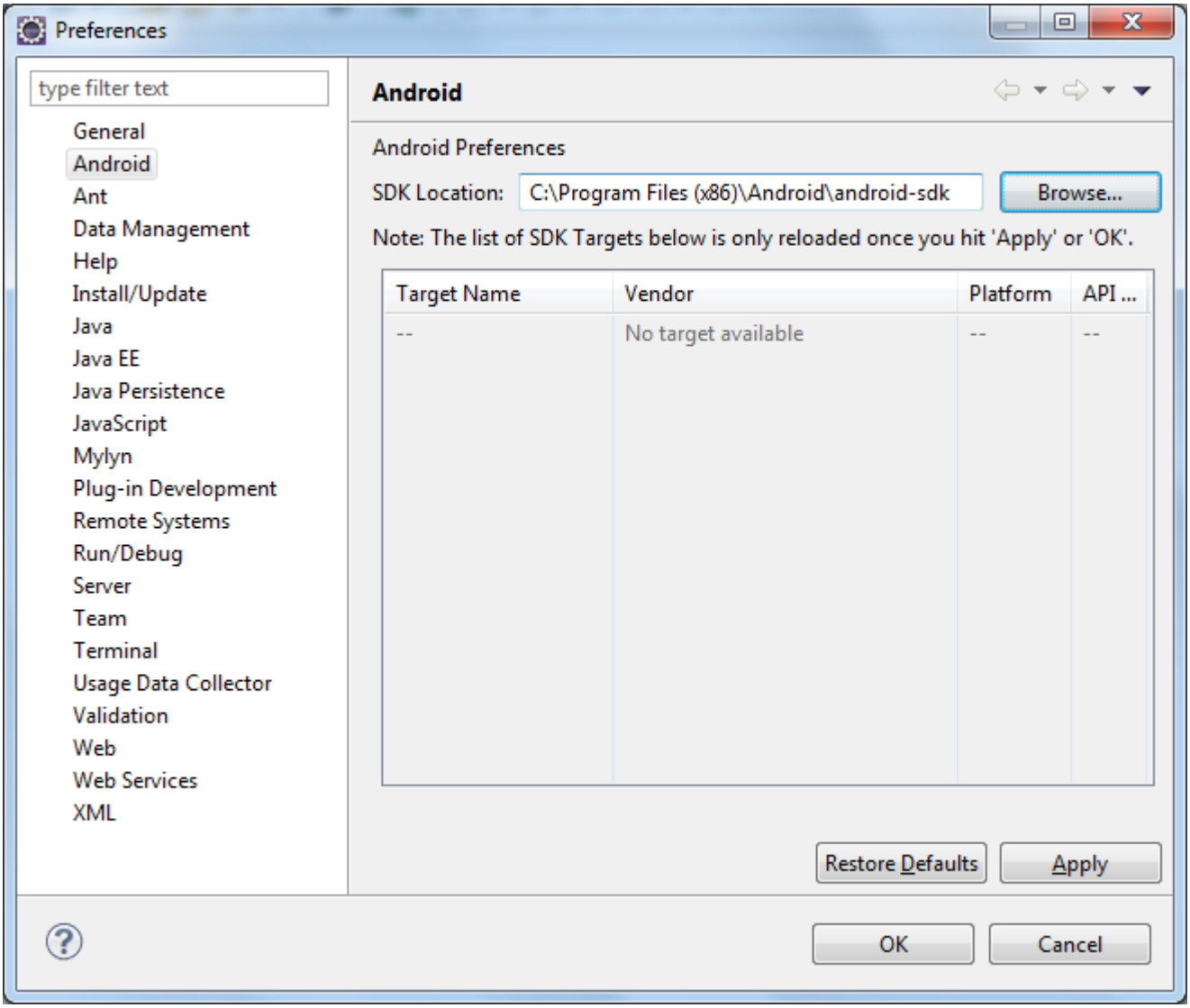

9. Click “OK”.




10. Click “Restart Now” to restart Eclipse.



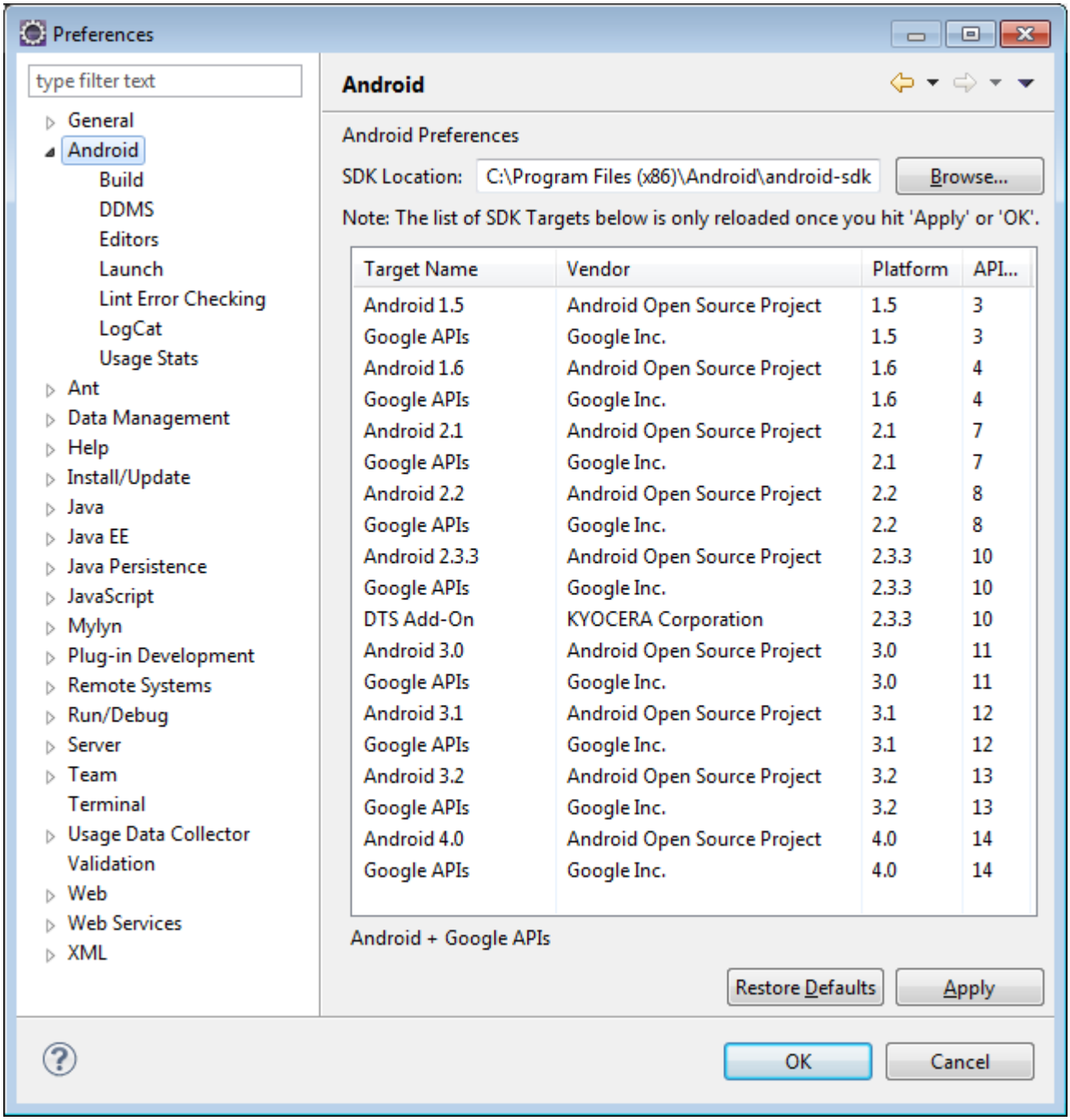

11. Window > Preferences




12. Click “Android” in left column.

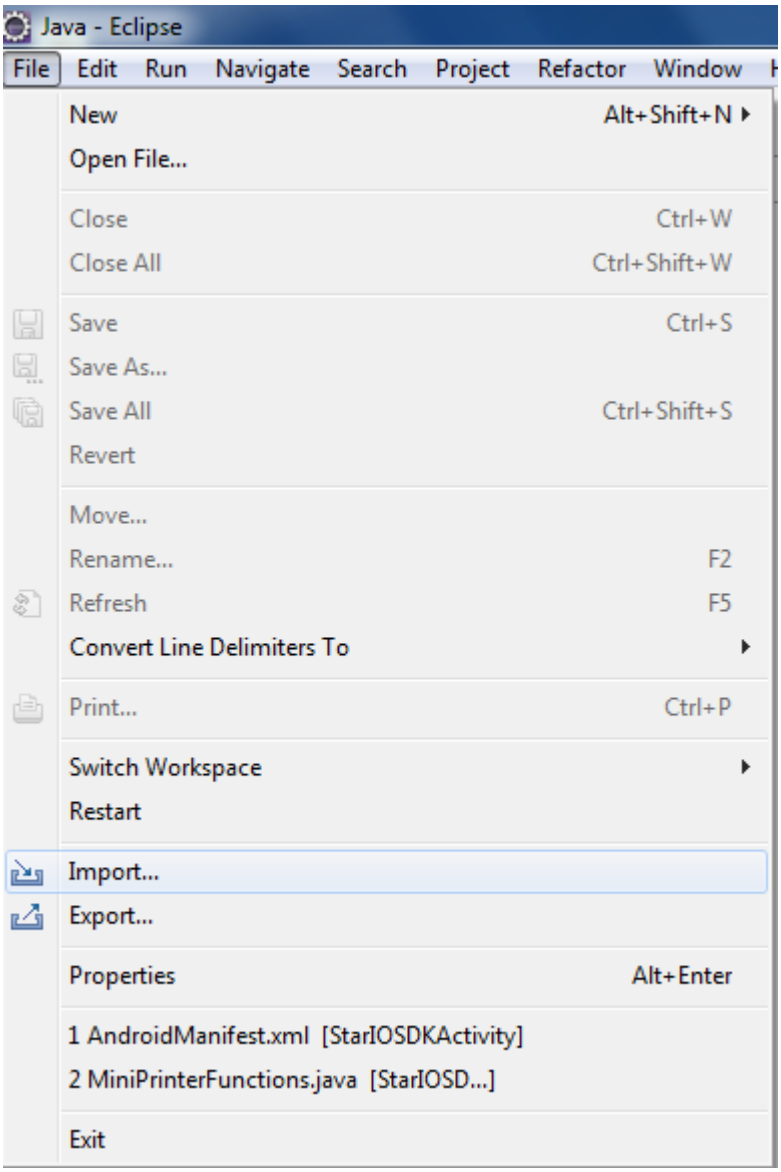
13. Browse to the location of the Android folder where the SDK Manager was installed. (C:\Android\android-sdk).

14. Nothing will appear in the box below until Apply is clicked.

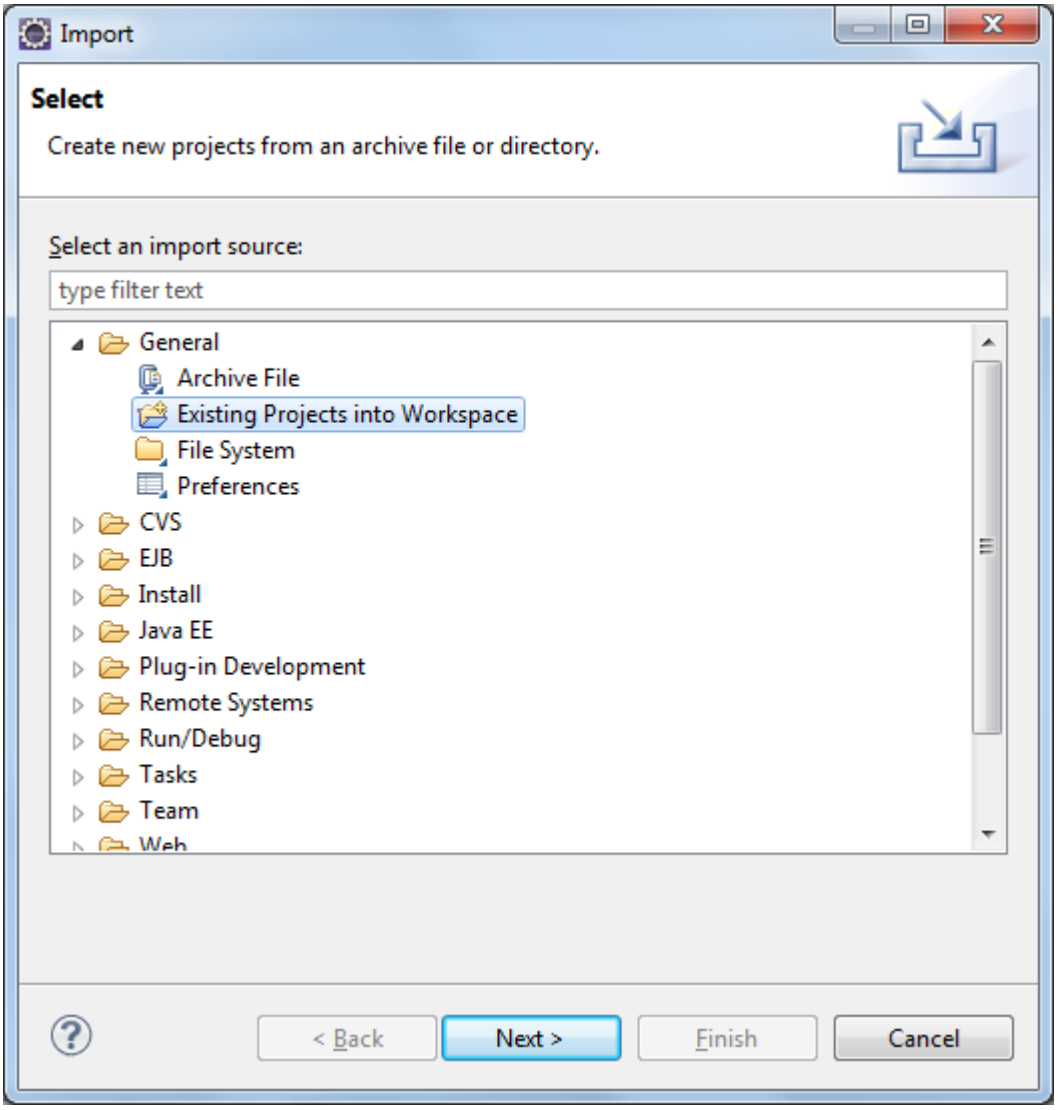



15. Installed packages appear. Click OK.

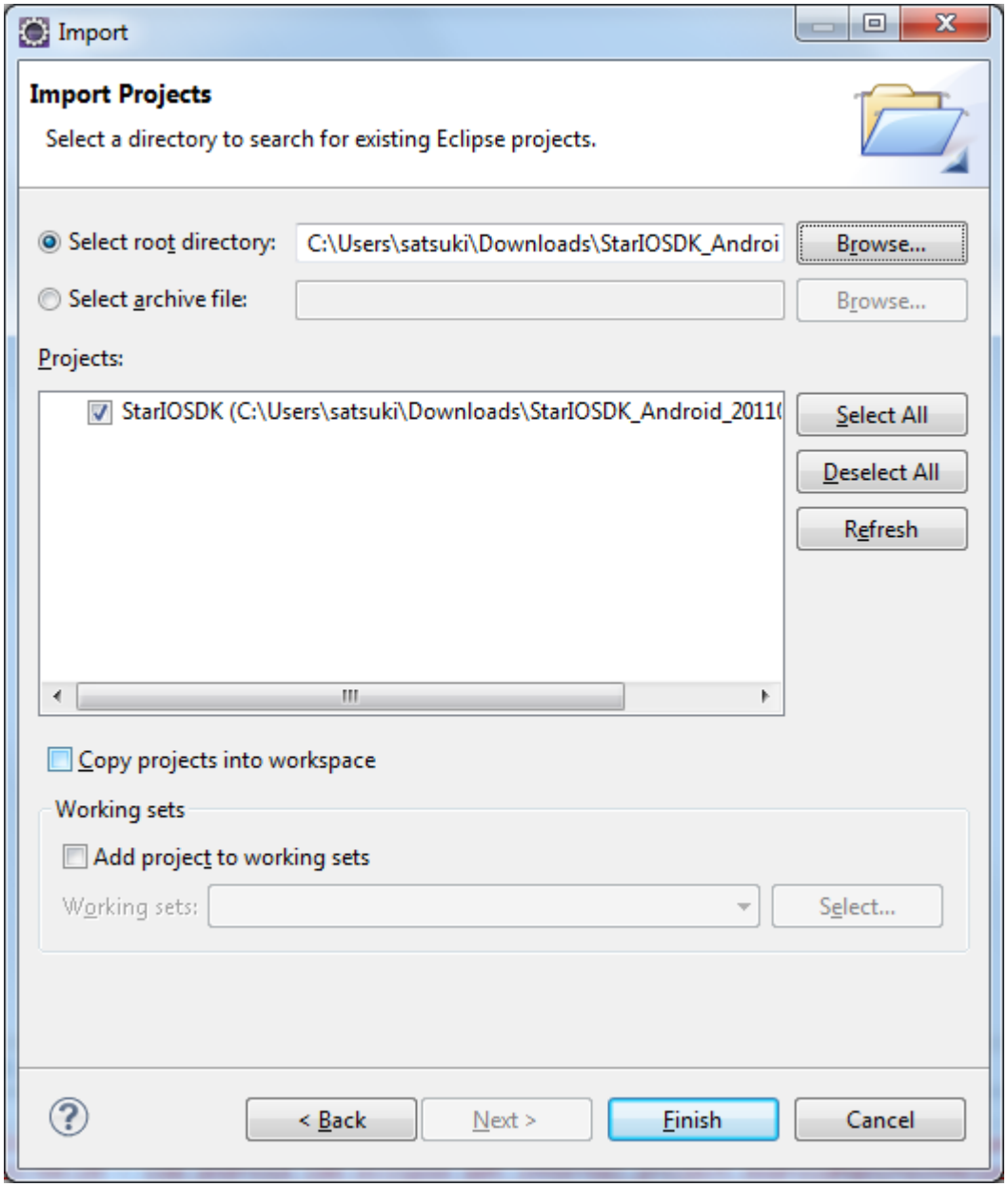
## V. Import Star Android SDK



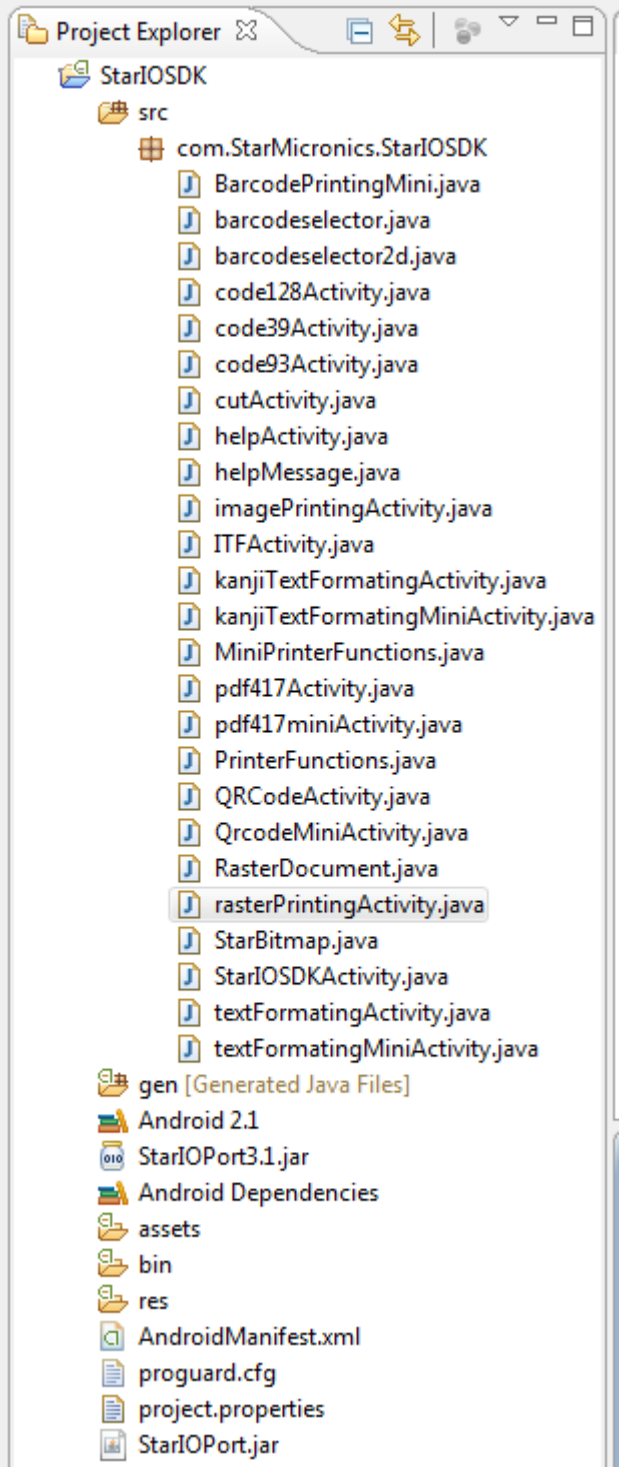

1. File > Import




2. General > Existing Projects into Workspace




3. Browse to the location where the Star SDK is saved. Click Finish.




4. The Application loads. GUI functions are available in src > com.StarMicronics.StarIOSDK package.
MiniPrinterFunctions.java = Star Portable printers
Printer Functions = Star POS Desktop printers / mPOP

5. Don’t execute the application yet. Section VII covers setting up a run environment.

# VI. StarIOPort Library

The file StarIOPort3.1.jar is a library that you can include into your Java projects to expose StarIO methods. It is included in Star Micronics' Android SDK application, but must be imported into any new application.

## Selecting a StarIO Library:

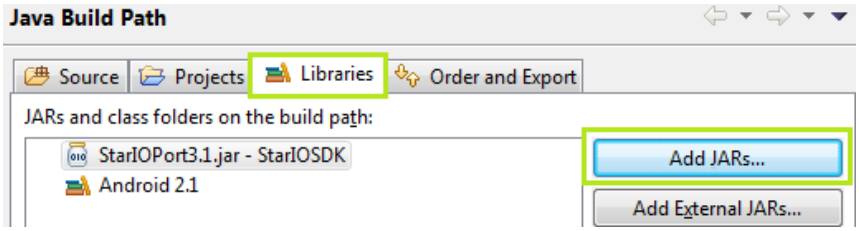
The StarIO SDK contains two library files. Use the one which corresponds to the Android OS Version your application is being developed for.

| Supported Versions | Supported Star Interfaces | Compatible StarIO JAR File |
|---|---|---|
| Android OS 3.1 and Higher | USB, Ethernet, WLAN | StarIOPort3.1.jar (Default) |
| Android OS 2.2, 2.3, 3.0 | Ethernet, WLAN | StarIOPort3.1.jar (Default) |
| Android OS 2.1 | Ethernet, WLAN | StarIOPort.jar |

## How to include StarIO into your project:

To include this library into your project:

1. Drag the appropriate StarIO library file into the Project Explorer from the SDK package
2. Right click the project folder and choose Properties
3. Click Java Build Path

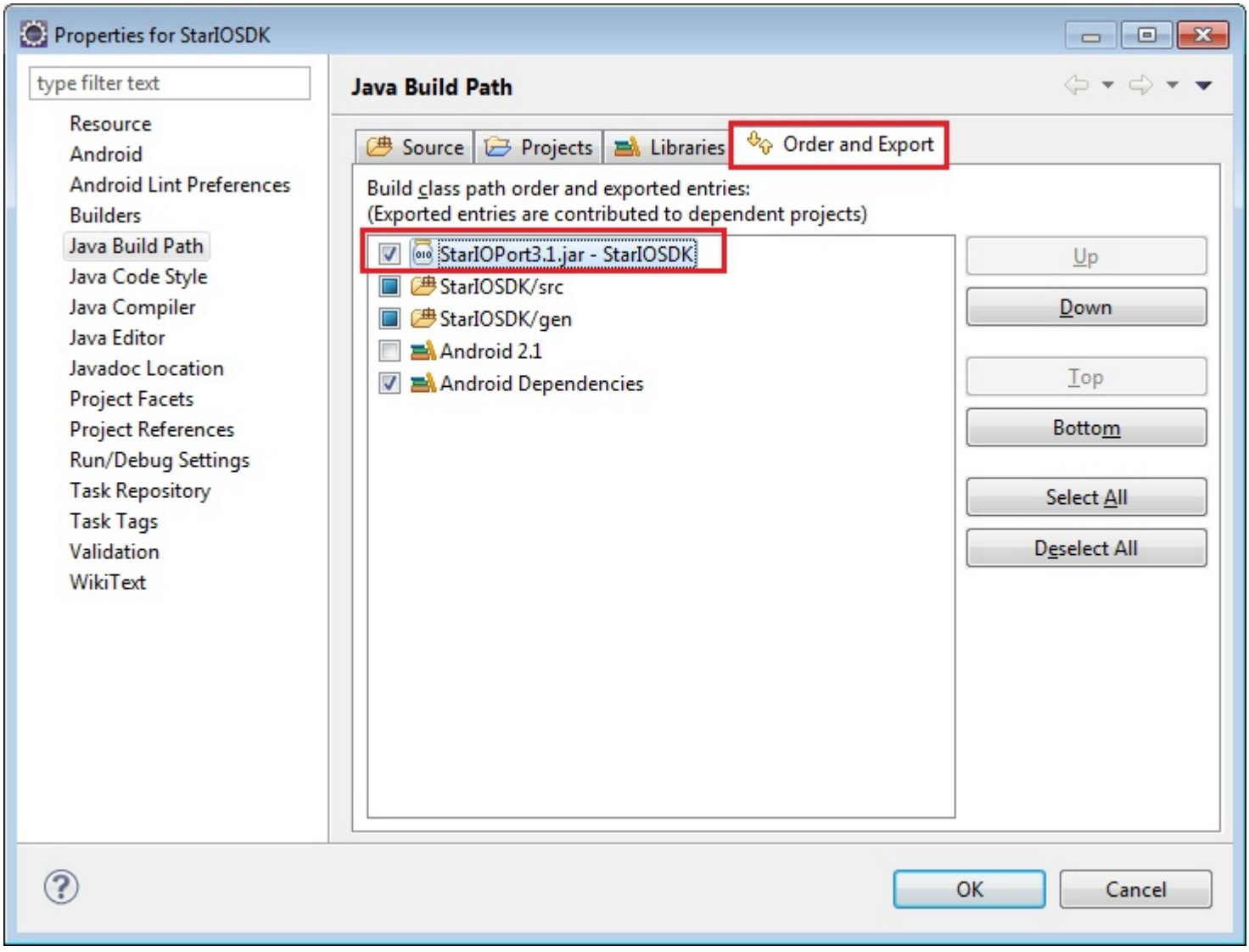



4. Click Libraries and the Add JARs button
5. At the top of your main code add:
   ```
   import com.starmicronics.stario.StarIOPort;
   import com.starmicronics.stario.StarIOPortException;
   import com.starmicronics.stario.StarPrinterStatus;
   ```
6. Now you can access all of StarIO's methods!

**Android SDK Tools r17 and Higher:**

Library management has been changed starting from Android SDK Tools r17. It is essential to order the StarIOPort JAR before StarIOSDK/src. This method presented no problem from Android SDK Tools r16 and lower, but caused the application to crash beginning with r17.

Star Micronics rectified this issue in the StarIO Android SDK V2.4. Please ensure the same caution is taken when using the StarIOPort JAR in your own application.




1. Right click the project name and select properties

2. Click Java Build Path and then Order and Export

3. Highlight the StarIOPort JAR and relocate it to above the application code

## Choosing a StarIOPort JAR

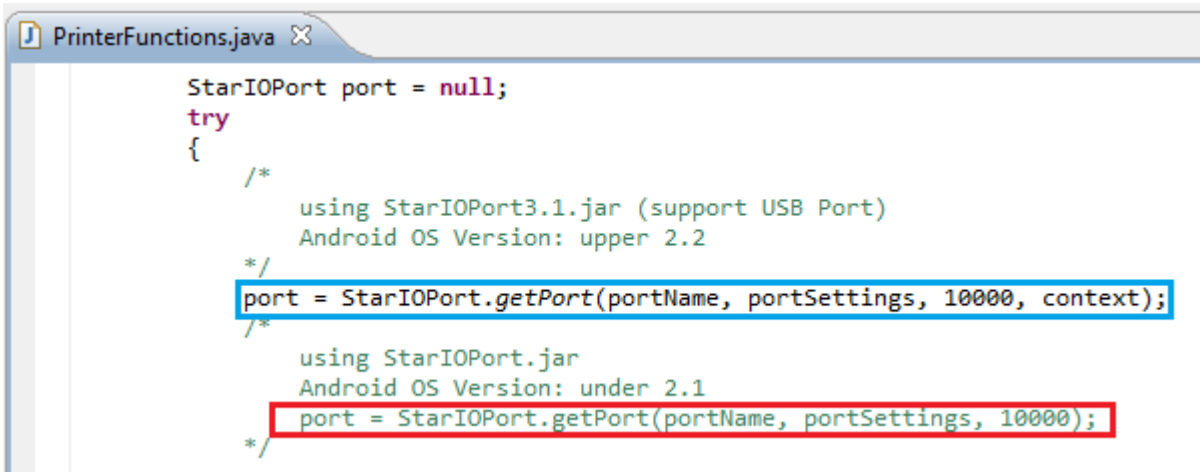
### Android OS V2.2 and Higher:

Include the default library: StarIOPort3.1.jar
Upon including this library, the StarIO SDK application will successfully run. No modifications to the source code are necessary.

Android OS 3.1 and higher: Supports USB, Ethernet, and WLAN connections.
Android OS 2.2, 2.3, 3.0: Supports Ethernet and WLAN connections.

### Android OS V2.1:

Include the legacy library: StarIOPort.jar
Upon including this library, the source code of the StarIO SDK application must be modified.




1. Comment this line: port = StarIOPort.getPort(portName, portSettings, 10000, context);
2. Uncomment this line: port = StarIOPort.getPort(port Name, portSettings, 10000);

This allows for the use of the legacy StarIOPort.jar library.

Android OS 2.1 supports Ethernet and WLAN connections.

# VII. Running Applications

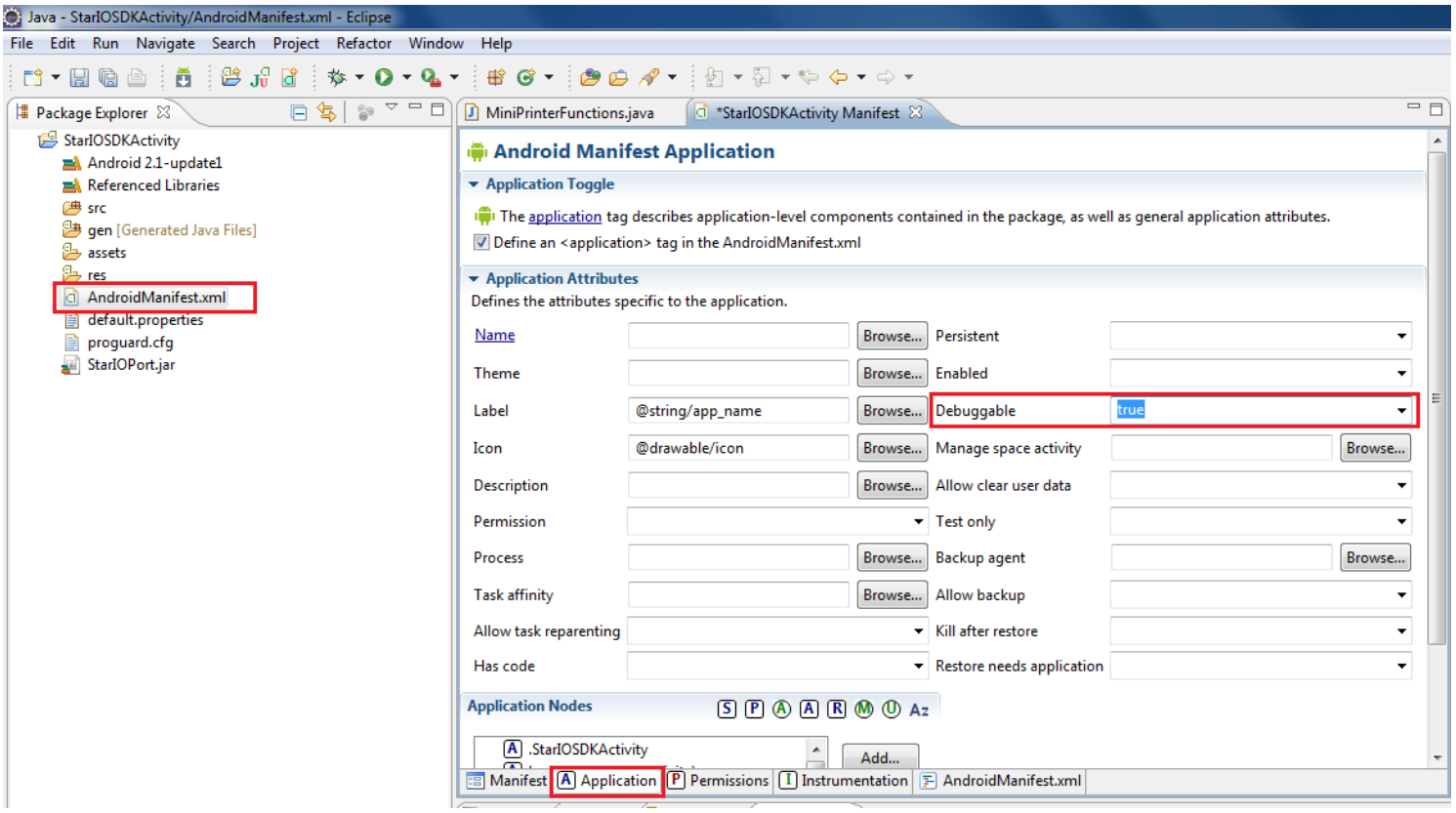
Notes:
There are two ways you can run your Android application:
A. Physically on an Android Device with USB port (recommended)
B. Using emulator on PC (Printer connection isn't supported. GUI support only.)

This document shows how to set up both.

## Running Applications: Using a Physical Android Device (Recommended)

You need three things to run applications directly on an Android device:
A. USB Windows driver from the Android device manufacturer
B. Mark application as Debuggable in manifest
C. Set up Android device

1. (Requirement A) Install USB driver for the Android device and connect it to the PC. If the device doesn't have a driver CD, search Google. The Android Developer site has a list of drivers, but it may be outdated:
http://developer.android.com/sdk/oem-usb.html




2. (Requirement B) In Eclipse, click "AndroidManifest.xml" in left column. Click the "Application" tab at the bottom. Set Debuggable to "true". Save.

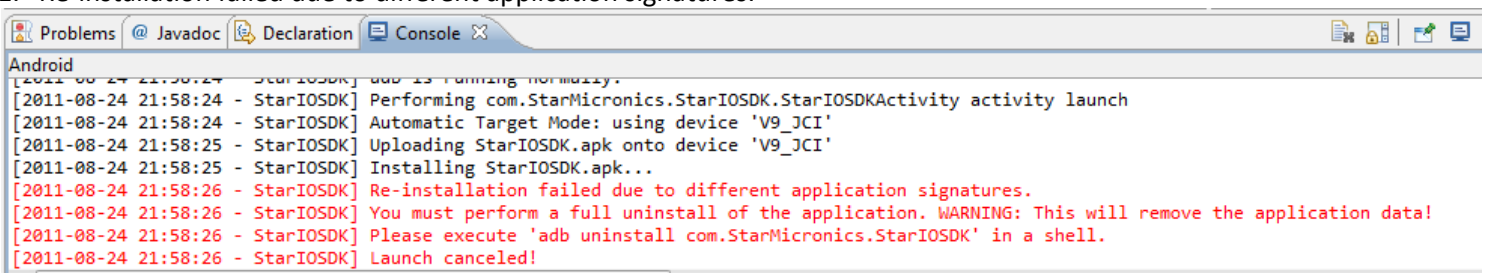
3. (Requirement C) On your Android, touch Settings. Put a check mark next to “Unknown sources” (allows you to run apps not found on the Market). Then, touch “Development”. Put check marks next to “USB debugging”, “Stay awake”, and “Allow mock locations”.

4. Done. When you execute an application from Eclipse, it will automatically install and run on your Android device.

## Troubleshooting Sample Program Run Problems

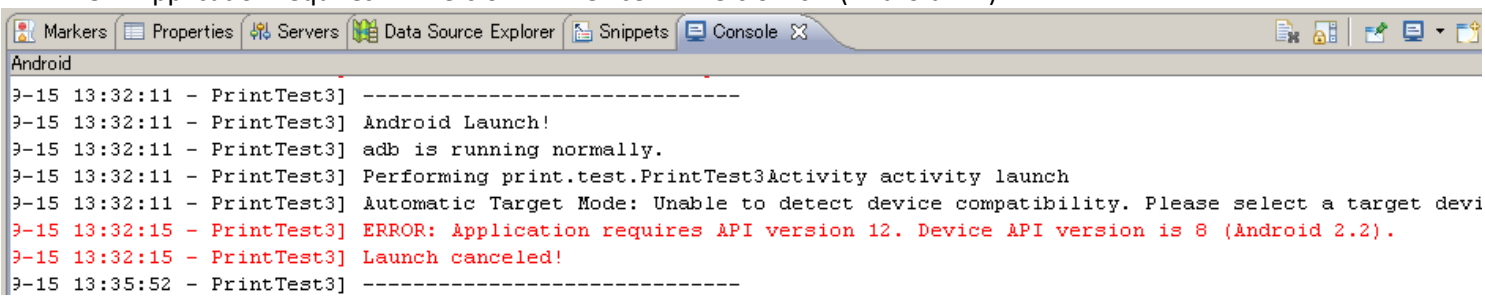
If you have trouble running sample application, see below…

1. “Re-installation failed due to different application signatures.”

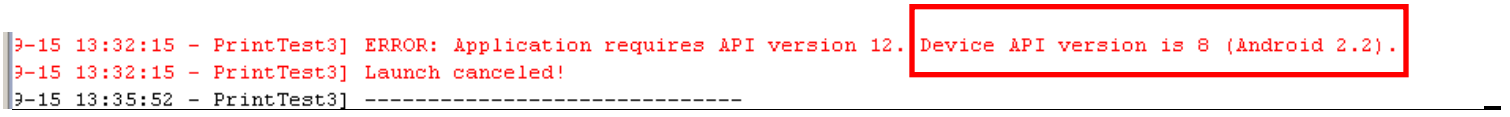


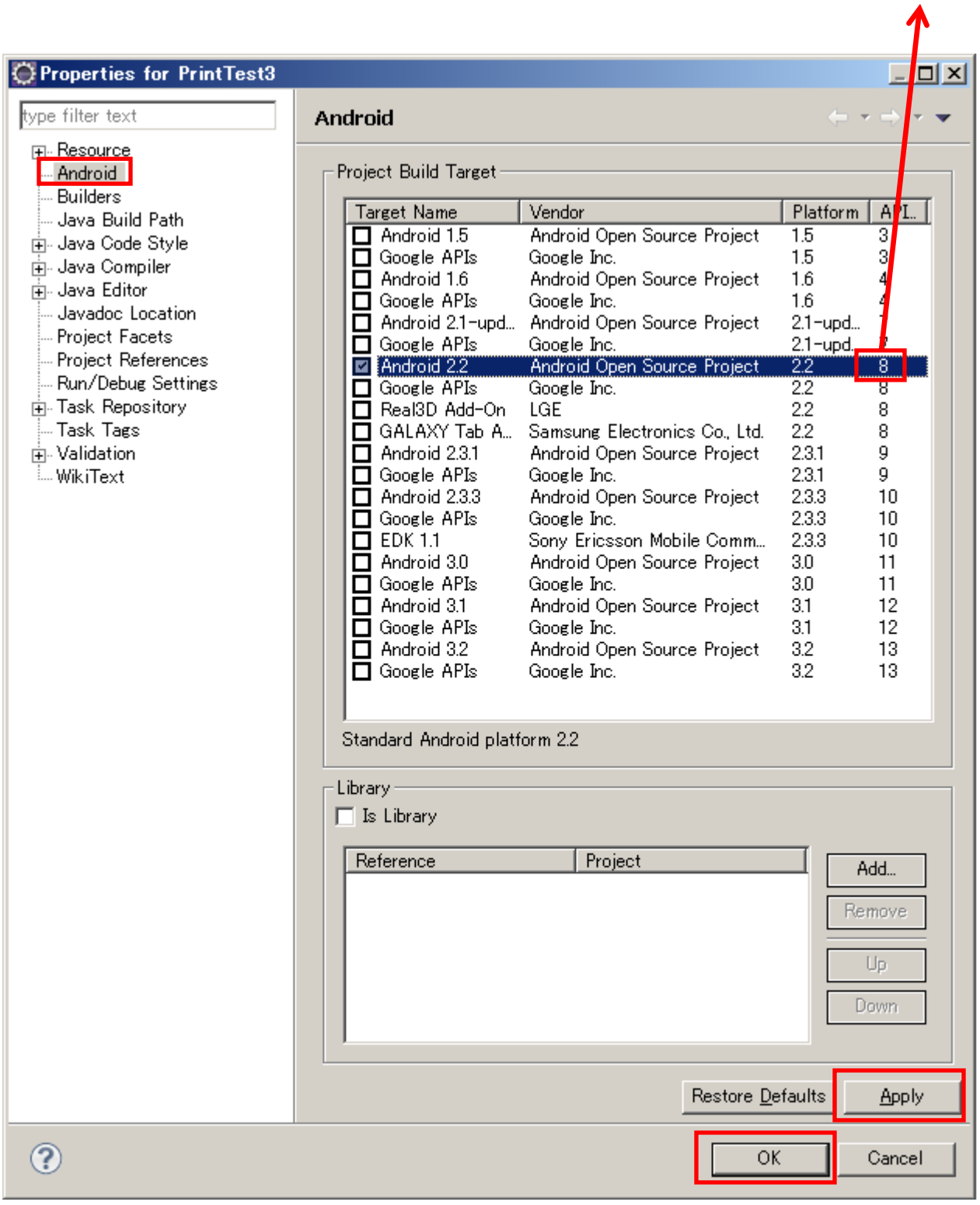

Problem: If you change PCs in the future and try to install same application on your Android, you may get this error.
Solution: You need to remove the app from the Android. Touch Settings > Applications > Manage Applications > [name of app that will not compile]. Delete it completely. Run the program again from Eclipse.

2. “ERROR: Application requires API version XX. Device API version is X (Android X.X).”

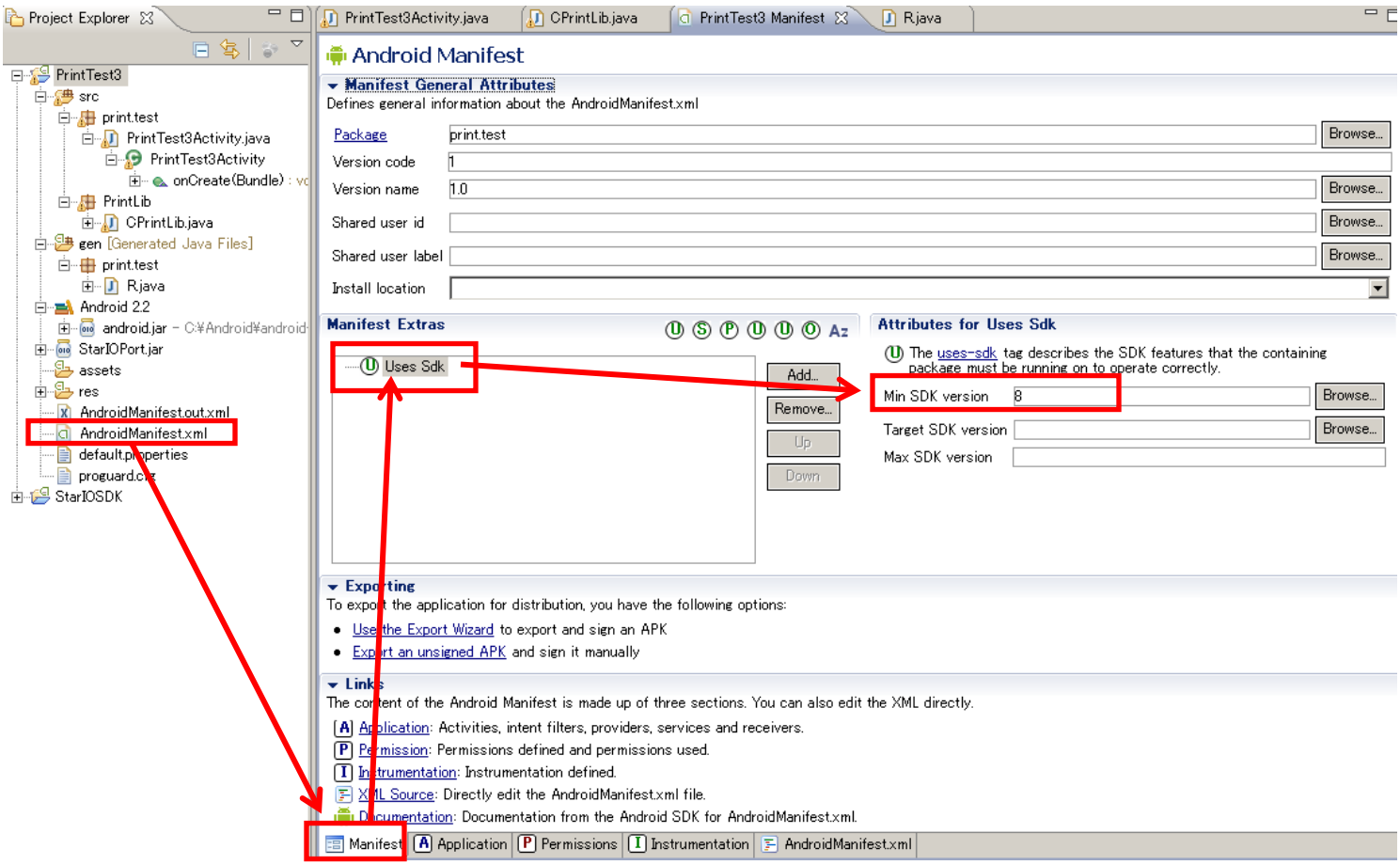



Problem: Sample application was set to minimum API version. Your Android device is lower than that version.
Solution: You need to change the minimum API version to be compatible with your tablet. This is done in two steps using Eclipse.





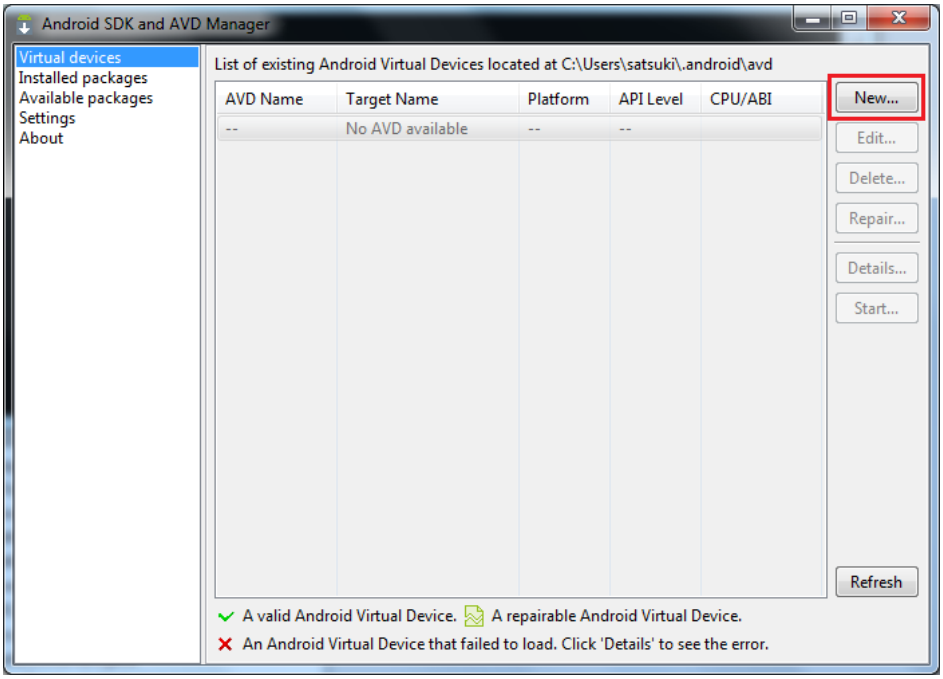

2a. Right click on project name. Select Properties.
2b. Click Android. Select the API version compatible with your device. You can see the API version required in the error line.



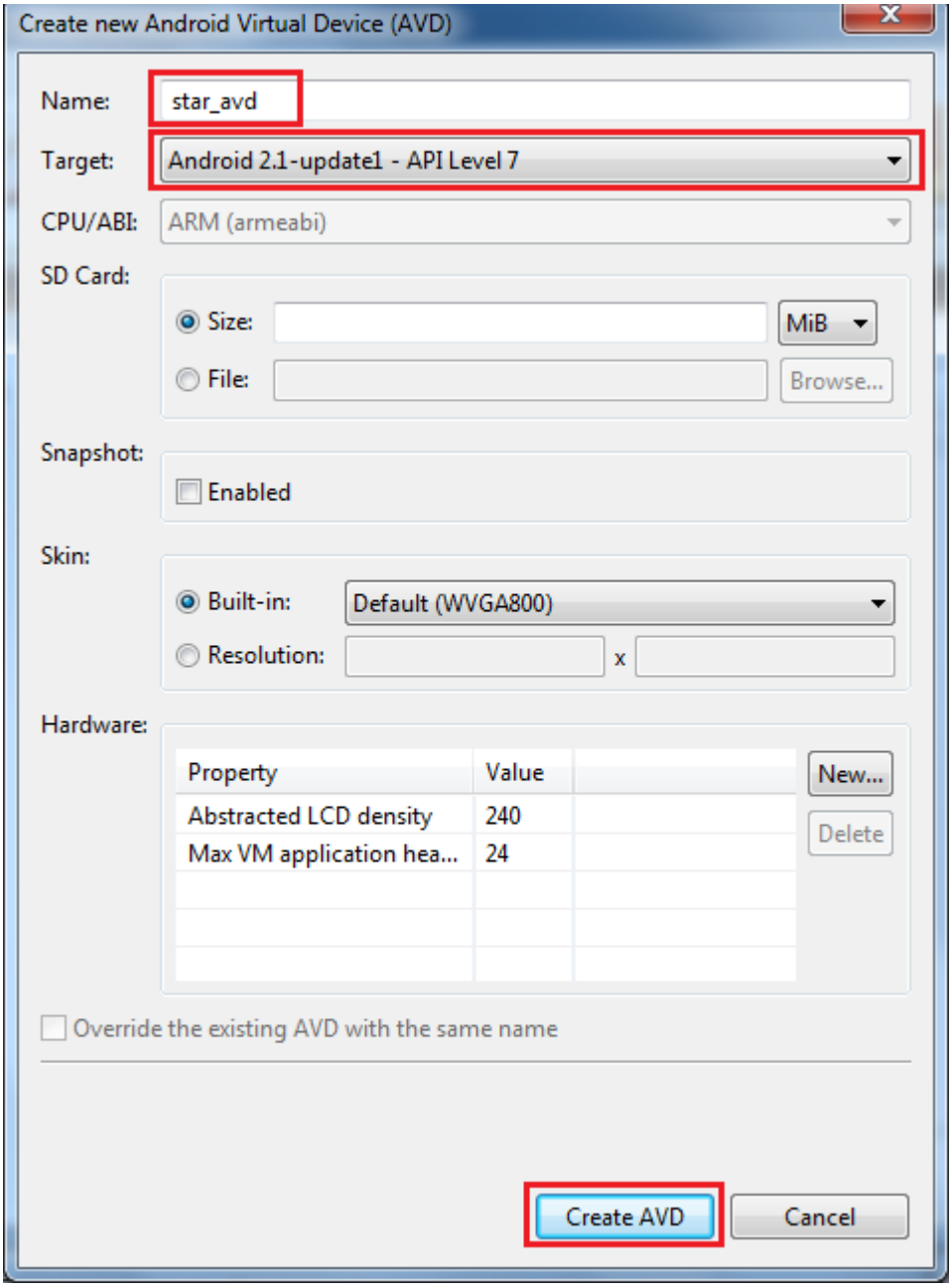

2c. Open the Manifest.
2d. Click “Manifest” tab on bottom.
2e. Click “Uses Sdk”.
2f. Type API version of your Android device. (Remember: You can see the API version required in error line.)

## Running Applications: Android Emulator

You can run your application on an emulator, but printer communication via USB and Bluetooth will not work.

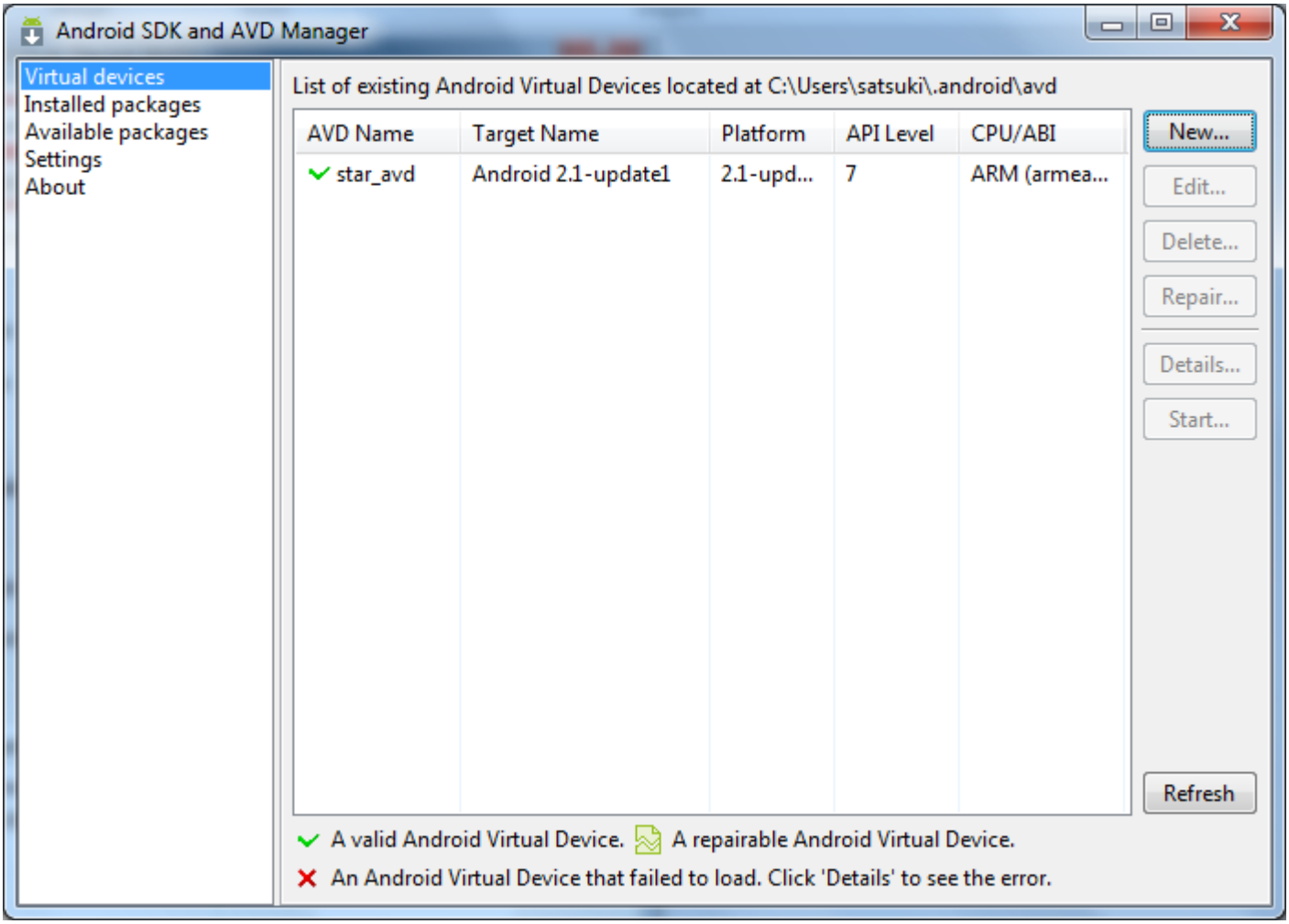



1. Open Android SDK Manager. Click “Virtual devices” in left column. Then, click “New”.



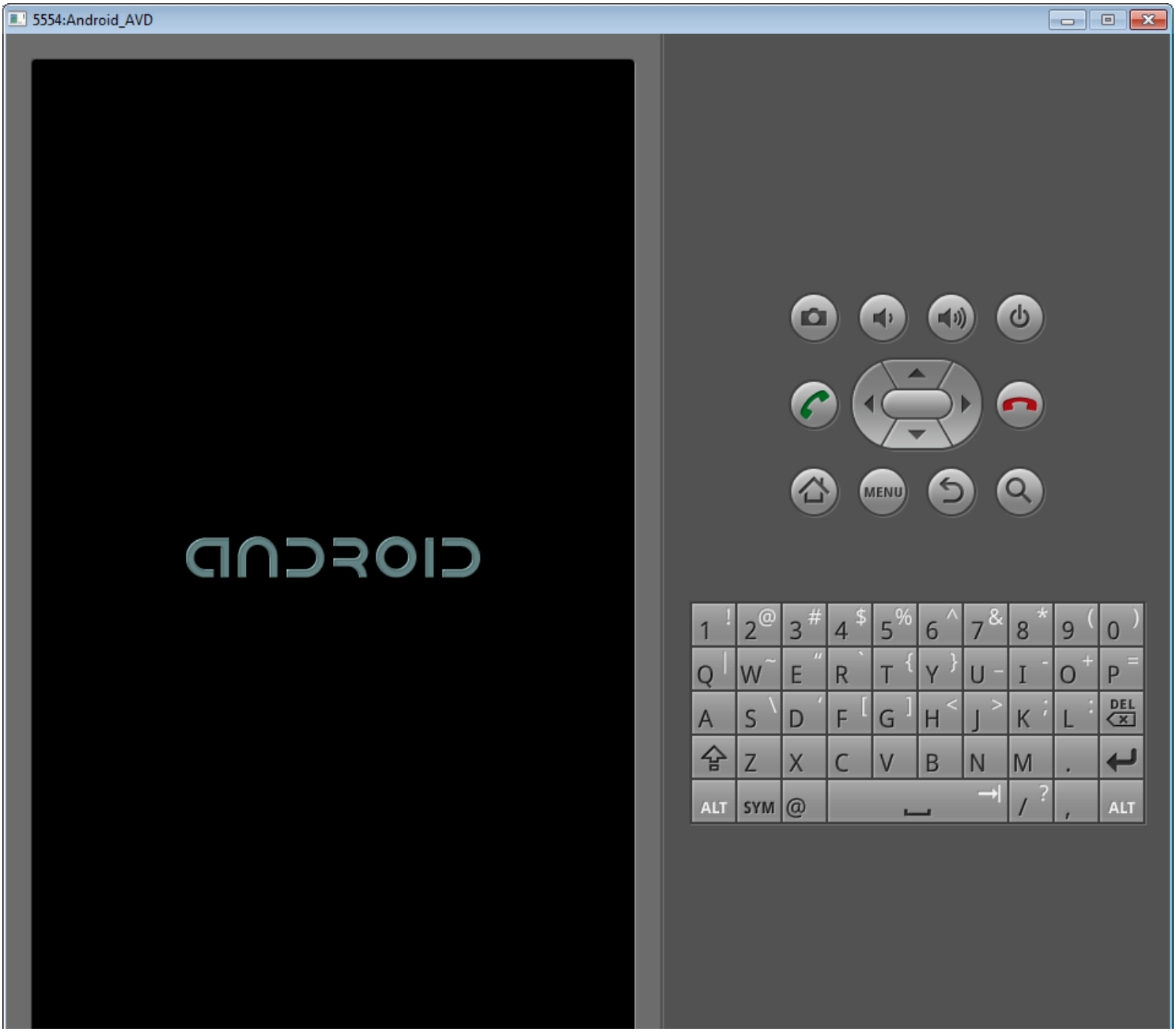

2. Type a name and choose target.

3. Create AVD

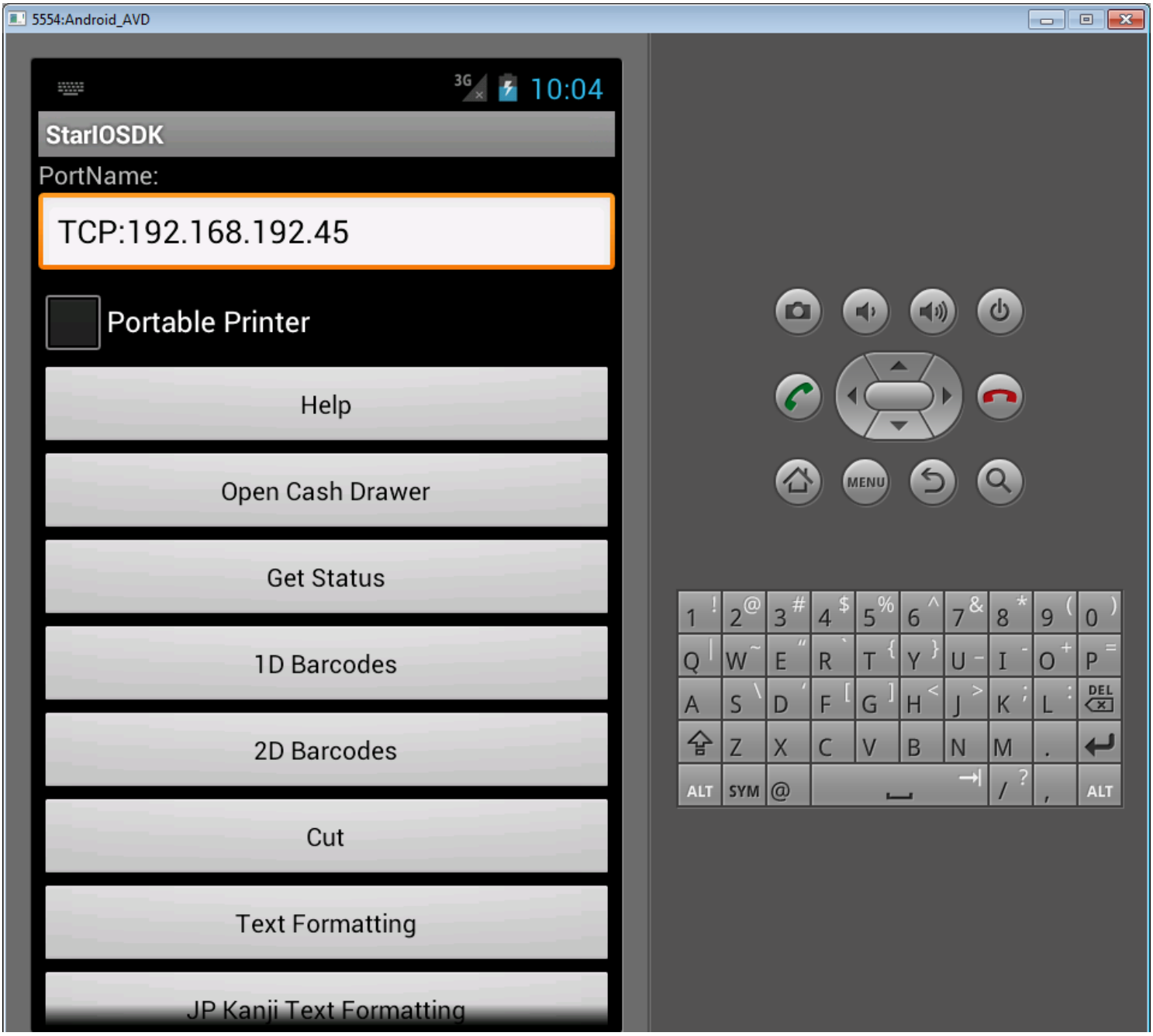



4. The virtual device appears.

5. Open Eclipse and execute your application. It will take some time for the emulator to load.



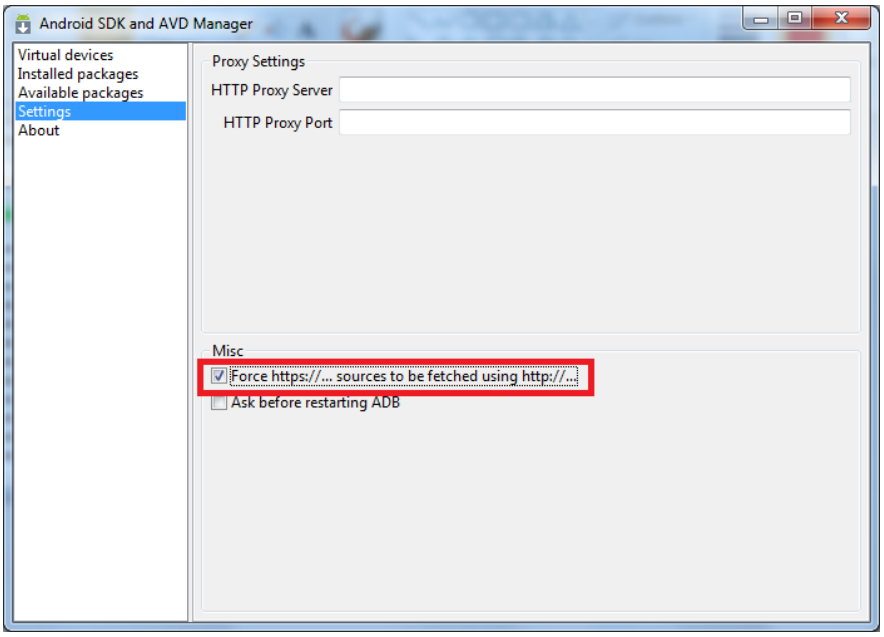

6. This screen will appear for quite some time.




7. Finally, click the “Menu” button on the right and the application will appear.

## VIII. Troubleshooting

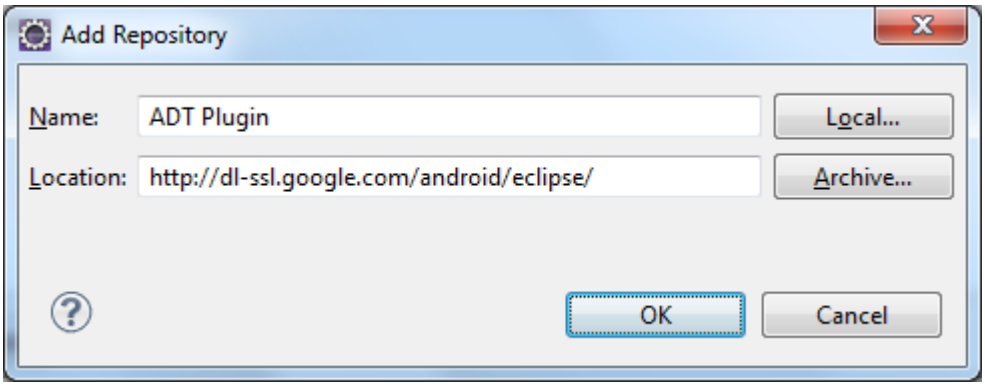
Depending on internet connection, you might have problems installing the ADT Plugin. If you cannot download, try this.




1. Open SDK Manager. Click “Settings” in left column. Then, check “Force https://...”.

If this does not work…

1. Uncheck “Force https://...”.




2. Change repository URL in Eclipse to “http://...” (no ‘s’).

If you still have trouble…

You can download the package on your own here: http://developer.android.com/sdk/eclipse-adt.html#troubleshooting



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We have a long history of implementations into Retail, Point of Sale, Hospitality, Restaurants and Kitchens, Kiosks and Digital Signage, Gaming and Lottery, ATMs, Ticketing, Labeling, Salons and Spas, Banking and Credit Unions, Medical, Law Enforcement, Payment Processing, and more!

High Quality POS Receipts, Interactive Coupons with Triggers, Logo Printing for Branding, Advanced Drivers for Windows, Mac and Linux, Complete SDK Packages, Android, iOS, Blackberry Printing Support, OPOS, JavaPOS, POS for .NET, Eco-Friendly Paper and Power Savings with Reporting Utility, ENERGY STAR, MSR Reading, *future*PRNT, StarPRNT… How can Star help you fulfill the needs of your application?

Don't just settle on hardware that won't work as hard as you do. Demand everything from your printer. Demand a Star!

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