



Reading App Builder

Installation Instructions



Reading App Builder: Installation Instructions

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You are free to print this manual for personal use and for training workshops.

The latest version is available at
<http://software.sil.org/readingappbuilder/resources/>

and on the Help menu of Reading App Builder.

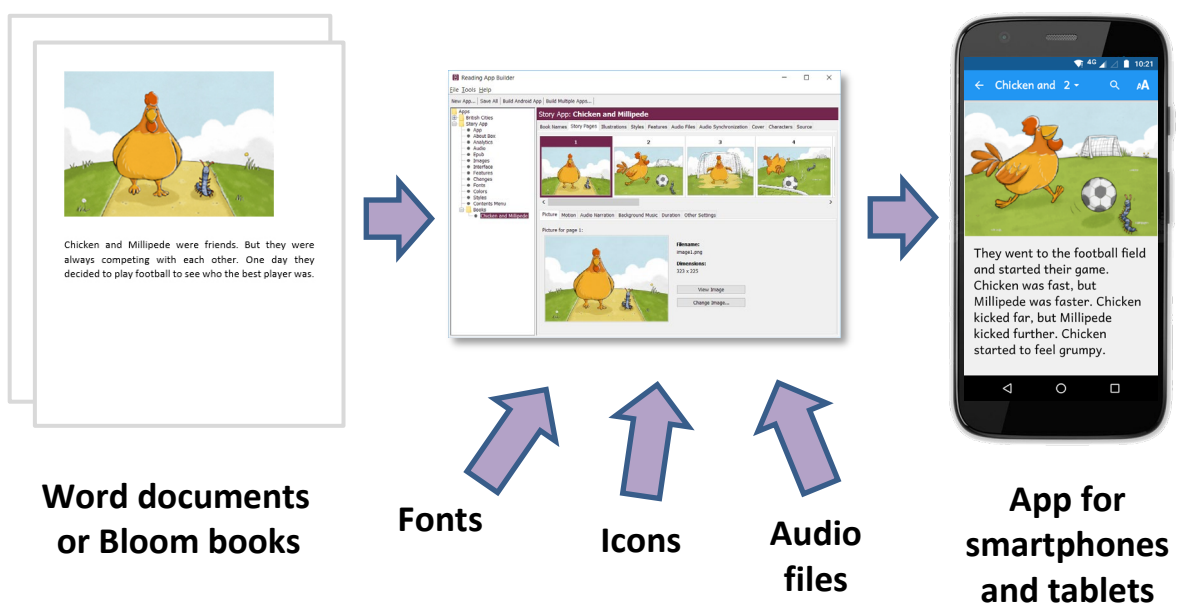
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1. Introduction

Reading App Builder does what its name suggests: it helps you to build customized reading apps for smartphones and tablets. You can use it to make apps containing picture books, health and community development materials, song books, illustrated stories and libraries of easy-to-read books for new readers – each with the option of synchronizing text and audio, highlighting each phrase as it is read. The app menus, icon, splash screen and colors can all be customized for your language and culture.

You specify the text and audio files, the app name, the fonts, the colours, the about box information and the icons. Reading App Builder will package everything together and build the customized app for you. You then install it on your mobile device, send it to others by Bluetooth, share it on microSD memory cards and publish it to app stores on the Internet.



To install Reading App Builder on **Windows**, please follow the instructions in section 2. For **Linux**, please find the instructions in section 3.

For **Mac**, you can find the installation instructions in the document **Installing and Building Apps on a Mac**.

2. Windows Installation

In order to run Reading App Builder on Windows, you need to have 3 components installed on your computer:

1. Reading App Builder
2. Java SE Development Kit (JDK)
3. Android Software Development Kit (SDK)

Here are more details on installing each of these three components.

2.1. Installing Reading App Builder

Run the setup program, **Reading-App-Builder-x.x-Setup.exe**, to install Reading App Builder to your computer, where x.x is the version number.

You can download the latest version from the **Download** page of the Reading App Builder website: <http://software.sil.org/readingappbuilder/download>

2.2. Installing Java Development Kit (JDK)

You will need version 8 of the Java Development Kit (JDK) to build apps. We recommend you use Amazon Corretto, which is a free distribution of OpenJDK.

Go to the Amazon Corretto 8 Downloads page:

<https://docs.aws.amazon.com/corretto/latest/corretto-8-ug/downloads-list.html>

There are many download files on this page. You are looking for the file that corresponds to your computer's operating system type. It is easiest to download the msi (installer package file) rather than the zip file.

- Choose the **Windows x64** download if your computer is running 64-bit Windows, e.g. amazon-corretto-8.212.04.2-1-windows-x64.msi.
- Choose the **Windows x86** download if your computer is running 32-bit Windows, e.g. amazon-corretto-8.212.04.2-1-windows-x86.msi.

The screenshot shows a web browser window displaying the 'Downloads for Amazon Corretto 8' page. The page contains a table with the following data:

Platform	Type	Download Link	Checksum (MD5)	Sig File
Linux x64	JDK	java-1.8.0-amazon-corretto-jdk_8.212.04-2_amd64.deb	a04bc41d62ce8ed25bdb10d2a4fada88	
		java-1.8.0-amazon-corretto-devel-1.8.0_212.b04-2.x86_64.rpm	461739abc1fc08b89b5540d4fa05993b	
		amazon-corretto-8.212.04.2-linux-x64.tar.gz	782d5452cd7395340d791dbdd0f418a8	Download
Windows x64	JDK	amazon-corretto-8.212.04.2-1-windows-x64.msi	a030757f394ffdd73018e24e2ec1991f	
		amazon-corretto-8.212.04.2-windows-x64-jdk.zip	b84eece357bbab8597baa3a415664fc3	Download
	JRE	amazon-corretto-8.212.04.2-windows-x64-jre.zip	deb7ec26424544cae79295ed1d31fe3d	Download
Windows x86	JDK	amazon-corretto-8.212.04.2-1-windows-x86.msi	9e41040131d850b4da2277f062026992	
		amazon-corretto-8.212.04.2-windows-x86-jdk.zip	0e69cdded96c99c65485ba75b569a4d6	Download

Annotations in the image include an arrow pointing to the 'amazon-corretto-8.212.04.2-1-windows-x64.msi' row with the label 'Windows 64-bit download', and another arrow pointing to the 'amazon-corretto-8.212.04.2-1-windows-x86.msi' row with the label 'Windows 32-bit download'.

When the file has downloaded, run it to install the JDK on your computer.

This will normally be installed into the C:\Program Files\Amazon Corretto folder.

2.3. Installing Android Software Development Kit (SDK)

There are two ways of installing the Android Software Development Kit (SDK):

1. **Copy the Android SDK files from someone else:**

If you know someone who has already downloaded and installed the Android SDK, you can copy all the files from them.

This method is especially useful in a training workshop where several people need to install the SDK but have limited internet bandwidth.

See 2.3.1 for more details.

2. **Download the Android SDK packages from the internet:**

Download the basic SDK command line tools and then download and install three additional packages. This method will require an internet connection.

See 2.3.2 for more details.

2.3.1. Copying the Android SDK files from someone else

If you know someone who has already downloaded and installed the Android SDK and is successfully building apps with it, you can copy all of their Android SDK files to a folder on your computer.

You need to look for the top-level Android SDK folder, such as **c:\sdk**, and copy the whole folder and its contents to your computer. A location such as **c:\sdk** is good. If it makes it easier, you can zip the folders and then unzip them onto your computer.

Note that there is no setup program to run. Copying the files from one computer to another is sufficient.

Tip: A typical Android SDK folder can be quite large (several hundred MB, or even a few GB, depending on which additional packages have been installed). To build an app with Reading App Builder, you do not actually need all of the Android SDK files. If you want to cut down the number of files, here is a list of the essential and optional folders:

Android SDK Folder	Required for building apps?
tools	Yes
build-tools	Yes (you only need the sub-folder for the latest version)
platforms	Yes (you only need android-29 for now)

Android SDK Folder	Required for building apps?
platform-tools	Yes
add-ons	No
docs	No
extras	No
sources	No
system-images	No, unless you want to use an emulator
temp	No

2.3.2. Downloading the Android SDK packages from the internet

To install the Android SDK from the internet, you need the basic SDK command line tools rather than the full Android Studio installation.

The installation will be done in two steps:

- A. Download and install the basic SDK command line tools.
- B. Download and install additional packages from within Reading App Builder.

A. Download and install the basic SDK tools

Do the following:

1. Go to the Android SDK web page: <http://developer.android.com/sdk>
2. Scroll down to the bottom of the web page until you see the sub-heading, **Get just the command line tools**.
3. Download the latest Windows package, e.g. **commandlinetools-win-6200805_latest.zip**. The file size is around 77 MB.

Command line tools only

If you do not need Android Studio, you can download the basic Android command line tools below. You can use the included [sdkmanager](#) to download other SDK packages.

These tools are included in Android Studio.

Platform	SDK tools package	Size	SHA-256 checksum
Windows	commandlinetools-win-6200805_latest.zip	77 MB	8072ca0ad737eb3142793829a8682c685ae8a30a3b8f9b884fe8c617931af826
Mac	commandlinetools-mac-6200805_latest.zip	77 MB	23f0626336a98d70aff7311a73292026af31bc577c6f06b509cd4ad33752313e
Linux	commandlinetools-linux-6200805_latest.zip	77 MB	f10f9d5bca53cc27e2d210be2cbc7c0f1ee906ad9b868748d74d62e10f2c8275

4. Before downloading, you will need to click a checkbox to confirm you agree with the Terms and Conditions.
5. When the file has downloaded, unzip the contents of the file into a new folder on your computer, such as **c:\sdk**.

When the file is unzipped, the c:\sdk folder should contain a single sub-folder named 'tools'. You do not need to run any setup program here.

Important: Do not unzip the Android SDK into a sub-folder of the Program Files folder, otherwise you will have trouble updating the SDK components there.

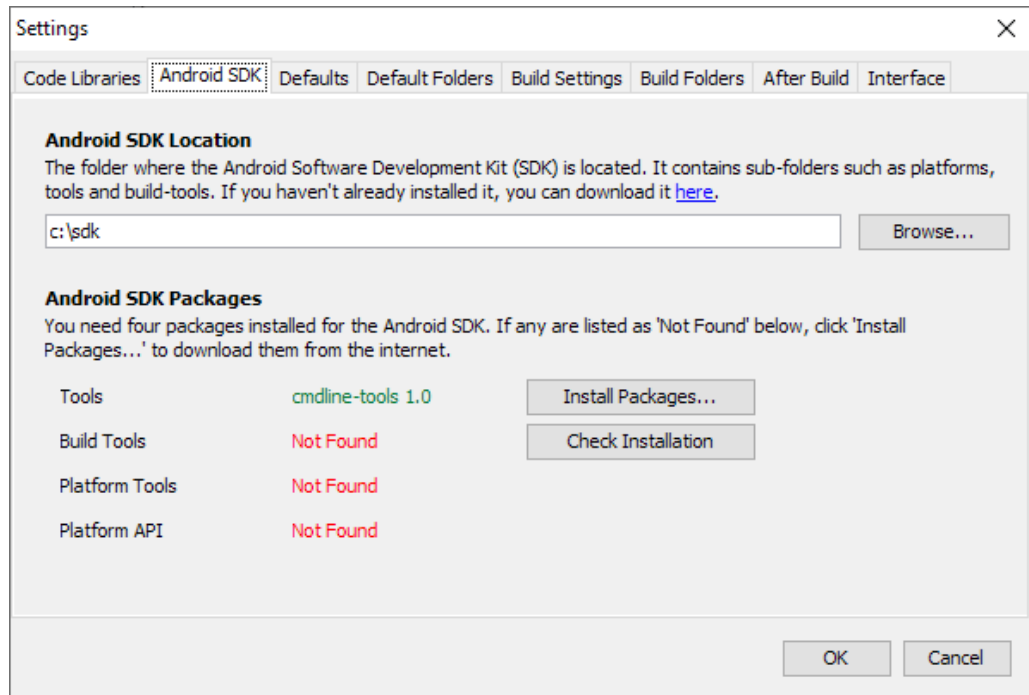
B. Download and install additional SDK packages

The Android SDK as it stands will not be sufficient to build an app. You need to download three additional packages:

- (i) Android SDK Build-tools (120 MB),
- (ii) Android SDK Platform-tools (31 MB), and
- (iii) Android SDK Platform (104 MB).

To install these packages:

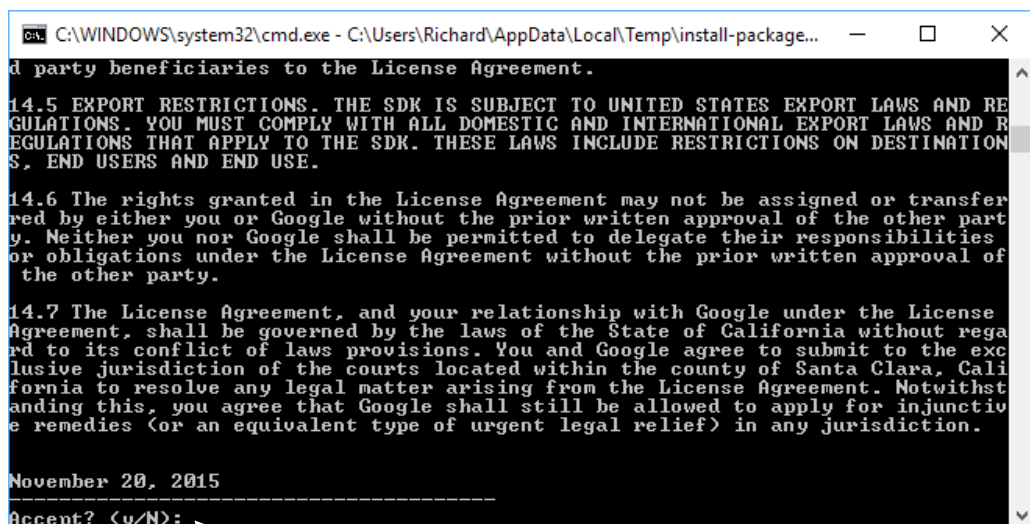
1. Launch **Reading App Builder**.
2. Select **Tools** ➤ **Settings** from the main menu.
3. Go to the **Android SDK** tab, which is the second tab.
4. Enter the Android SDK Location by clicking **Browse** and navigating to the SDK folder which you have just created. If you followed the suggestion above, this will be **c:\sdk**.



If the Android SDK location is valid, you should see the version of the Tools package displayed in green.

5. Click **Install Packages...** to begin downloading and installing the three packages that are “Not Found” (Build tools, Platform tools and Platform API). You will need an internet connection.

Type **y** (for yes) followed by **Enter** to agree with the license agreement.



Type **y** and **Enter** to accept the license

Depending on the speed of your internet connection the downloads might take some time. There are over 230 MB of files to download.

As each of the three packages are downloaded and unzipped, you should see the progress.

```
C:\WINDOWS\system32\cmd.exe - C:\Users\Richard\AppData\Local\Temp\install-package...
[=====] 55% Unzipping... android-10/mainDexClas...
Info: Installing Android SDK Build-Tools 29.0.3 in c:\sdk\build-tools\29.0.3
[=====] 55% Unzipping... android-10/mainDexClas...
[=====] 100% Unzipping... android-10/mainDexClas...
Info: "Install Android SDK Build-Tools 29.0.3 (revision: 29.0.3)" complete.
[=====] 100% Unzipping... android-10/mainDexClas...
Info: "Install Android SDK Build-Tools 29.0.3 (revision: 29.0.3)" finished.
[=====] 100% Unzipping... android-10/mainDexClas...

Installing "platform-tools"...
Loading package information...
Loading local repository...
Info: Parsing c:\sdk\build-tools\28.0.3\package.xml
Info: Parsing c:\sdk\build-tools\29.0.3\package.xml
Info: Parsing c:\sdk\platform-tools\package.xml
Info: Parsing c:\sdk\platforms\android-28\package.xml
Info: Parsing c:\sdk\tools\package.xml
[=====] 3% Loading local repository...
[=====] 3% Fetch remote repository...
[=====] 3% Fetch remote repository...
```

```
C:\WINDOWS\system32\cmd.exe - C:\Users\Richard\AppData\Local\Temp\install-package...
Info: Preparing "Install Android SDK Platform 29 (revision: 4)".
[=====] 10% Installing Android SDK Platform 29
[=====] 10% Downloading platform-29_r04.zip...
[=====] 10% Downloading platform-29_r04.zip...
[=====] 11% Downloading platform-29_r04.zip...
[=====] 12% Downloading platform-29_r04.zip...
[=====] 13% Downloading platform-29_r04.zip...
[=====] 14% Downloading platform-29_r04.zip...
[=====] 15% Downloading platform-29_r04.zip...
[=====] 15% Downloading platform-29_r04.zip...
[=====] 16% Downloading platform-29_r04.zip...
[=====] 17% Downloading platform-29_r04.zip...
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[=====] 23% Downloading platform-29_r04.zip...
[=====] 24% Downloading platform-29_r04.zip...
[=====] 25% Downloading platform-29_r04.zip...
[=====] 25% Downloading platform-29_r04.zip...
[=====] 26% Downloading platform-29_r04.zip...
[=====] 27% Downloading platform-29_r04.zip...
```

```
C:\WINDOWS\system32\cmd.exe - C:\Users\Richard\AppData\Local\Temp\install-package...
[=====] 54% Unzipping... android-10/skins/WUGA...
[=====] 54% Unzipping... android-10/skins/WUGA...
[=====] 54% Unzipping... android-10/skins/WUGA...
[=====] 54% Unzipping... android-10/skins/WUGA...
[=====] 54% Unzipping... android-10/skins/WXGA...
[=====] 54% Unzipping... android-10/skins/WXGA...
[=====] 54% Unzipping... android-10/skins/WXGA...
[=====] 54% Unzipping... android-10/skins/WXGA...
[=====] 54% Unzipping... android-10/framework...
[=====] 55% Unzipping... android-10/framework...

Info: "Install Android SDK Platform 29 (revision: 4)" ready.
[=====] 55% Unzipping... android-10/framework...

Info: Installing Android SDK Platform 29 in c:\sdk\platforms\android-29
[=====] 55% Unzipping... android-10/framework...
[=====] 100% Unzipping... android-10/framework...

Info: "Install Android SDK Platform 29 (revision: 4)" complete.
[=====] 100% Unzipping... android-10/framework...

Info: "Install Android SDK Platform 29 (revision: 4)" finished.
[=====] 100% Unzipping... android-10/framework...

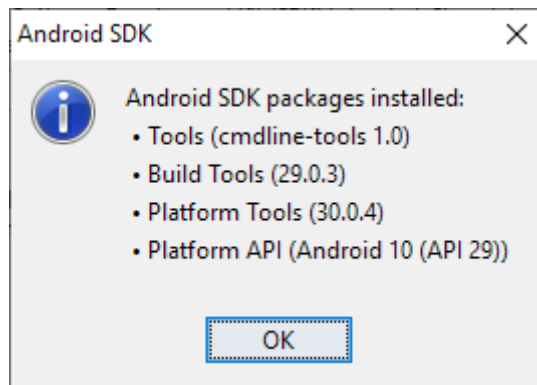
Press any key to continue . . .
```

If you get a message saying “Install... failed” or “Failed to read or create install properties file”, this might be because:

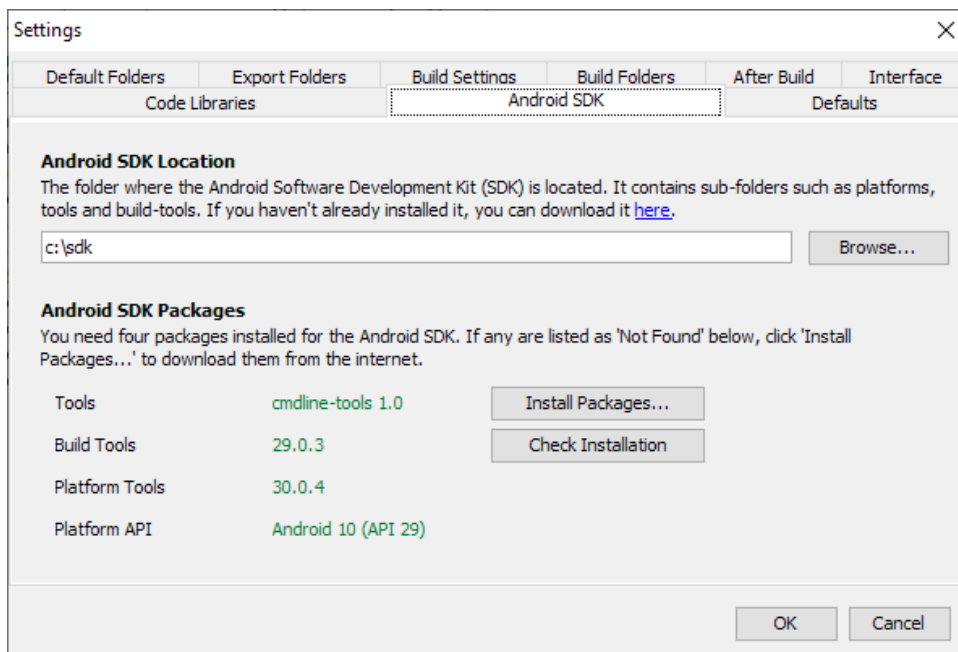
- the internet connection is not working, or
- you do not have enough space on your hard disk.

If the installation of a package has failed, make sure you have an internet connection and enough hard disk space. Then click **Install Packages** again.

6. When all the required packages have been installed, click **Check Installation**. A message will appear listing the packages that have been installed.



If the installation was successful, you should see the version numbers displayed in green:



The Android SDK has now been installed for use by Reading App Builder.

3. Linux Installation

In order to run Reading App Builder on Linux, you need to have 3 components installed on your computer:

1. Reading App Builder
2. OpenJDK Java Development Kit (JDK)
3. Android Software Development Kit (SDK)

Packages are built for Ubuntu-based distributions (including [Wasta-Linux](#)) and are available in the [SIL repository for Ubuntu](#). The package for Reading App Builder already includes the dependencies on the package for OpenJDK and a package that will download the Android SDK from the internet and install it.

You have the following installation options for how the Android SDK is installed:

1. Follow the instructions in section 3.2 to download everything directly from the Internet.
2. Follow the instructions in section 3.3 to download the Android SDK files prior to installing the packages.
3. Follow the instructions in section 3.4 if you already have the Android SDK installed and you do not want another copy installed.

3.1. Add SIL repository for Ubuntu

In order to install packages from the SIL repository for Ubuntu, the repository must be added to the APT sources.

Note: **Wasta-Linux** already includes configuration for the SIL repository for Ubuntu and so you can skip this section.

If you are using another **Ubuntu-based distribution**, please follow the instructions below (or in the online document: [Setting up Repositories to download SIL Software](#)).

1. Open a Terminal window.
2. Open the file `/etc/apt/sources.list` in a text editor:

```
$ sudo gedit /etc/apt/sources.list
```

3. Add the following line to the bottom of the file (use `trusty` or `xenial` based on the version of Ubuntu you are using):

```
deb http://packages.sil.org/ubuntu xenial main
```

4. Save the edits to the file.
5. Back in the terminal window, add the repository security key :

```
$ wget http://packages.sil.org/sil.gpg -O- | sudo apt-key add -
```

3.2. Installing all packages from the Internet

Note: **Ubuntu 14.04** (Trusty Tahr) does not include the required Java 8 SDK. It is available from a Personal Package Archive (PPA). It is preferred to use packages from known sources. The [PPA for OpenJDK uploads](#) is owned by an Ubuntu/Canonical employee. Use at your own risk. Use the following command to add this PPA to the APT sources before trying to install.

```
$ sudo add-apt-repository ppa:openjdk-r/ppa
```

To install all the required software from the command line, type:

```
$ sudo apt-get update
```

```
$ sudo apt-get install reading-app-builder
```

Note: **Wasta-Linux** does not automatically install recommended packages. To get everything installed, also install android-sdk-installer.

```
$ sudo apt-get install reading-app-builder android-sdk-installer
```

3.3. Downloading the Android SDK files prior to package installation

The **android-sdk-installer** package simplifies downloading and installing the Android SDK. Its default behaviour is to download the appropriate files from Google's Android software repository during the install. If this would be a problem due to bandwidth usage during the install, the files can be downloaded prior to installation.

3.3.1. Downloading the Android SDK files

On a computer connected to the internet, use the following command line instructions to create a new folder and download 4 zip files (approximately 400MB).

```
$ mkdir -p ~/Downloads/android-sdk-zips
```

```
$ cd ~/Downloads/android-sdk-zips
```

```
$ wget -ci http://bit.ly/android-sdk-urls
```

Note: the `-c` option will allow the downloads to be resumed if it fails part way through the download.

3.3.2. Provide zip files during the package install

Use **debconf** to pre-seed the package with the location of the files and install the package.

```
$ echo android-sdk-installer android-sdk-installer/dldir string ~/Downloads/android-sdk-zips | sudo debconf-set-selections
```

```
$ sudo apt-get install android-sdk-installer
```

```
$ echo android-sdk-installer android-sdk-installer/dldir string | sudo debconf-set-selections
```

3.4. Installing without Android SDK

The **android-sdk-installer** package is a recommended package for the **reading-app-builder** package. If the Android SDK is already installed, Reading App Builder can use the current installation.

```
$ sudo apt-get update
```

```
$ sudo apt-get install reading-app-builder --no-install-recommends
```

Set the **ANDROID_HOME** environment variable to the path of the Android SDK installation to allow Reading App Builder to find it automatically. Otherwise you can use the **Tools** ➤ **Settings** dialog in Reading App Builder to specify the path.

3.5. Automating Android SDK installation

The **android-sdk-installer** will prompt you to accept the license for the Android SDK. To automate the installation (e.g. in an Ansible playbook), pre-seed the answer to this question.

```
$ echo android-sdk-installer android-sdk-installer/accepted-android-sdk-eula boolean true | sudo debconf-set-selections
```

```
$ sudo apt-get install android-sdk-installer
```

4. How to build your first app

To build your first app with Reading App Builder, follow the instructions in the first chapter of the document *'Reading App Builder – 2 Building Apps'*.

5. Troubleshooting

When I try to launch Reading App Builder, I get the message “Could not find the main class... Program will exit”.

This might be because your computer is running an older version of the Java Runtime Environment (JRE). Reading App Builder requires at least Java 8.

Java 7 and earlier versions are no longer being supported, so it is a good idea to upgrade your Java installation for security reasons.

You can find the download here: <https://www.java.com/en/download/>