



Dictionary App Builder

Installation Instructions



Dictionary 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/dictionaryappbuilder/resources/>

and on the Help menu of Dictionary App Builder.

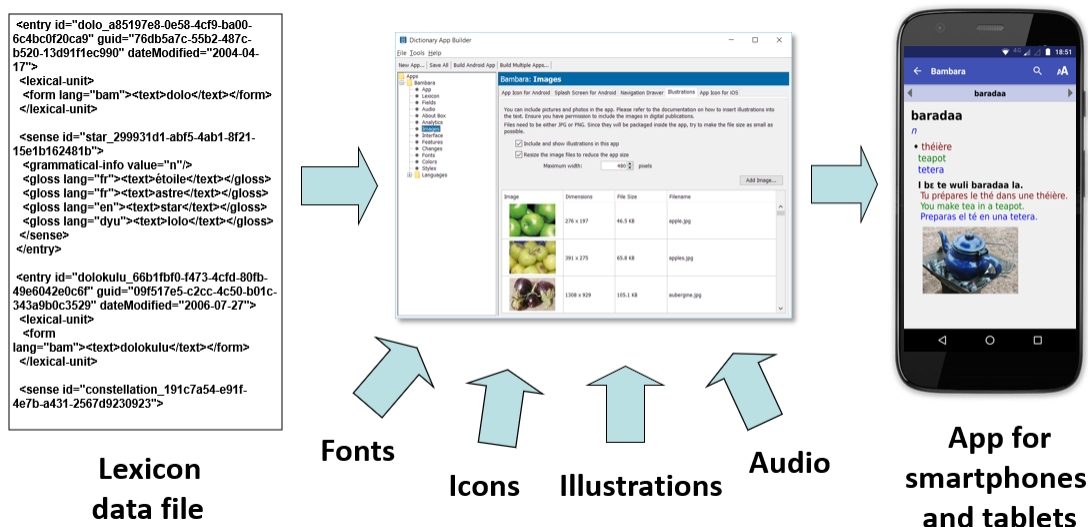
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1. Introduction

Dictionary App Builder does what its name suggests: it helps you to build customized dictionary apps for smartphones and tablets.

You specify the lexicon data file to use, the app name, fonts, colours, about box information, audio, illustrations and the icons. Dictionary 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 Dictionary App Builder on **Windows**, please follow the instructions in section 2. For **Linux**, please find the instructions in section 3.

2. Windows Installation

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

1. Dictionary App Builder (DAB)
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 Dictionary App Builder

Run the setup program, **Dictionary-App-Builder-x.x-Setup.exe**, to install Dictionary App Builder to your computer.

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

2.2. Installing Java SE Development Kit (JDK)

The latest version of the JDK is version 9, but you will need to use **JDK version 8** for Dictionary App Builder, not version 9.

Go to the Java SE Development Kit 8 Downloads page:

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

There are many download files on this page. You are looking for the download that corresponds to your computer's operating system type.

- Find the **Windows x86** download if you are using 32-bit Windows.
- Find the **Windows x64** download if you are using 64-bit Windows.

You'll need to click **Accept License Agreement** before you download.

| Product / File Description | File Size | Download |
|-----------------------------|-----------|---|
| Linux ARM 32 Hard Float ABI | 77.9 MB | jdk-8u151-linux-arm32-vfp-hflt.tar.gz |
| Linux ARM 64 Hard Float ABI | 74.85 MB | jdk-8u151-linux-arm64-vfp-hflt.tar.gz |
| Linux x86 | 168.95 MB | jdk-8u151-linux-i586.rpm |
| Linux x86 | 183.73 MB | jdk-8u151-linux-i586.tar.gz |
| Linux x64 | 166.1 MB | jdk-8u151-linux-x64.rpm |
| Linux x64 | 180.95 MB | jdk-8u151-linux-x64.tar.gz |
| macOS | 247.06 MB | jdk-8u151-macosx-x64.dmg |
| Solaris SPARC 64-bit | 140.06 MB | jdk-8u151-solaris-sparcv9.tar.Z |
| Solaris SPARC 64-bit | 99.32 MB | jdk-8u151-solaris-sparcv9.tar.gz |
| Solaris x64 | 140.65 MB | jdk-8u151-solaris-x64.tar.Z |
| Solaris x64 | 97 MB | jdk-8u151-solaris-x64.tar.gz |
| Windows x86 | 198.04 MB | jdk-8u151-windows-i586.exe |
| Windows x64 | 205.95 MB | jdk-8u151-windows-x64.exe |

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

This will normally be installed into the C:\Program Files\Java 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 Dictionary 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-26 for now) |
| 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 Dictionary App Builder.

A. Download and install the basic SDK tools

Do the following:

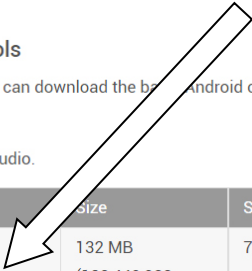
1. Go to the Android Studio Download web page:
<https://developer.android.com/studio>

But do not download Android Studio.
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. **sdk-tools-windows-3859397.zip**.
The file size is around 132 MB.

Get just the command line tools

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 | sdk-tools-windows-3859397.zip | 132 MB (138,449,982 bytes) | 7f6037d3a7d6789b4fdc06ee7af041e071e9860c51f66f7a4eb5913df9871fd2 |
| Mac | sdk-tools-darwin-3859397.zip | 82 MB (86,182,133 bytes) | 4a81754a760fce88cba74d69c364b05b31c53d57b26f9f82355c61d5fe4b9df9 |
| Linux | sdk-tools-linux-3859397.zip | 130 MB (136,964,098 bytes) | 444e22ce8ca0f67353bda4b85175ed3731cae3ffa695ca18119cbacef1c1bea0 |

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.

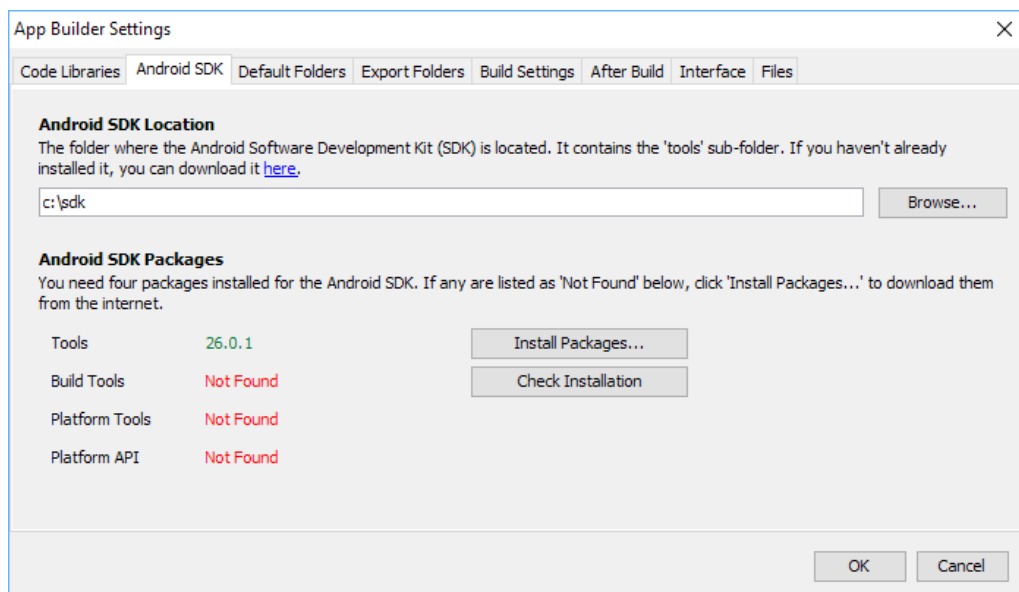
B. Download and install additional SDK packages

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 **Dictionary 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.

```
C:\WINDOWS\system32\cmd.exe - C:\Users\Richard\AppData\Local\Temp\install-package...
d party beneficiaries to the License Agreement.
14.5 EXPORT RESTRICTIONS. THE SDK IS SUBJECT TO UNITED STATES EXPORT LAWS AND RE
REGULATIONS. YOU MUST COMPLY WITH ALL DOMESTIC AND INTERNATIONAL EXPORT LAWS AND R
REGULATIONS THAT APPLY TO THE SDK. THESE LAWS INCLUDE RESTRICTIONS ON DESTINATION
S, END USERS AND END USE.
14.6 The rights granted in the License Agreement may not be assigned or transfer
red by either you or Google without the prior written approval of the other part
y. Neither you nor Google shall be permitted to delegate their responsibilities
or obligations under the License Agreement without the prior written approval of
the other party.
14.7 The License Agreement, and your relationship with Google under the License
Agreement, shall be governed by the laws of the State of California without rega
rd to its conflict of laws provisions. You and Google agree to submit to the exc
lusive jurisdiction of the courts located within the county of Santa Clara, Cali
fornia to resolve any legal matter arising from the License Agreement. Notwithst
anding this, you agree that Google shall still be allowed to apply for injunctive
remedies (or an equivalent type of urgent legal relief) in any jurisdiction.
November 20, 2015
-----
Accept? (y/N):
```

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

An “Info: Preparing...” message will be displayed while a package is being downloaded. 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, you should see a series of messages, concluding with “...complete”, “...finished” and “done”.

```
C:\WINDOWS\system32\cmd.exe - C:\Users\Richard\AppData\Loc...
-----
Accept? (y/N): y
Info: Preparing "Install Android SDK Build-Tools 26.0.3 (revision: 26.0.3)".
Info: "Install Android SDK Build-Tools 26.0.3 (revision: 26.0.3)" ready.
Info: Finishing "Install Android SDK Build-Tools 26.0.3 (revision: 26.0.3)"
Info: Installing Android SDK Build-Tools 26.0.3 in C:\sdk\build-tools\26.0.3
Info: "Install Android SDK Build-Tools 26.0.3 (revision: 26.0.3)" complete.
Info: "Install Android SDK Build-Tools 26.0.3 (revision: 26.0.3)" finished.
done
Installing "platform-tools"...
Info: Parsing C:\sdk\build-tools\26.0.3\package.xml
Info: Parsing C:\sdk\tools\package.xml
Info: Parsing C:\sdk\build-tools\26.0.3\package.xml
Info: Parsing C:\sdk\tools\package.xml
Info: Preparing "Install Android SDK Platform-Tools (revision: 26.0.2)".
Info: "Install Android SDK Platform-Tools (revision: 26.0.2)" ready.
Info: Finishing "Install Android SDK Platform-Tools (revision: 26.0.2)"
Info: Installing Android SDK Platform-Tools in C:\sdk\platform-tools
Info: "Install Android SDK Platform-Tools (revision: 26.0.2)" complete.
Info: "Install Android SDK Platform-Tools (revision: 26.0.2)" finished.
done
```

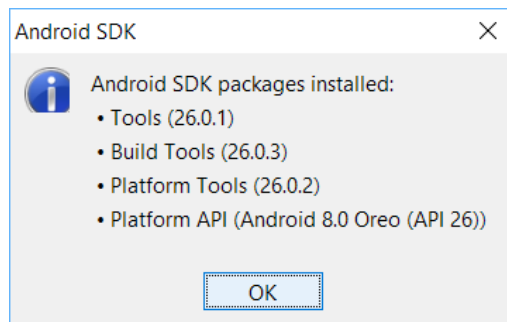
```
C:\WINDOWS\system32\cmd.exe - C:\Users\Richard\AppData\Loc...
Installing "platform"...
Info: Parsing C:\sdk\build-tools\26.0.3\package.xml
Info: Parsing C:\sdk\platform-tools\package.xml
Info: Parsing C:\sdk\tools\package.xml
Info: Parsing C:\sdk\build-tools\26.0.3\package.xml
Info: Parsing C:\sdk\platform-tools\package.xml
Info: Parsing C:\sdk\tools\package.xml
Info: Preparing "Install Android SDK Platform 26 (revision: 2)".
Info: "Install Android SDK Platform 26 (revision: 2)" ready.
Info: Finishing "Install Android SDK Platform 26 (revision: 2)"
Info: Installing Android SDK Platform 26 in C:\sdk\platforms\android-26
Info: "Install Android SDK Platform 26 (revision: 2)" complete.
Info: "Install Android SDK Platform 26 (revision: 2)" finished.
done
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:

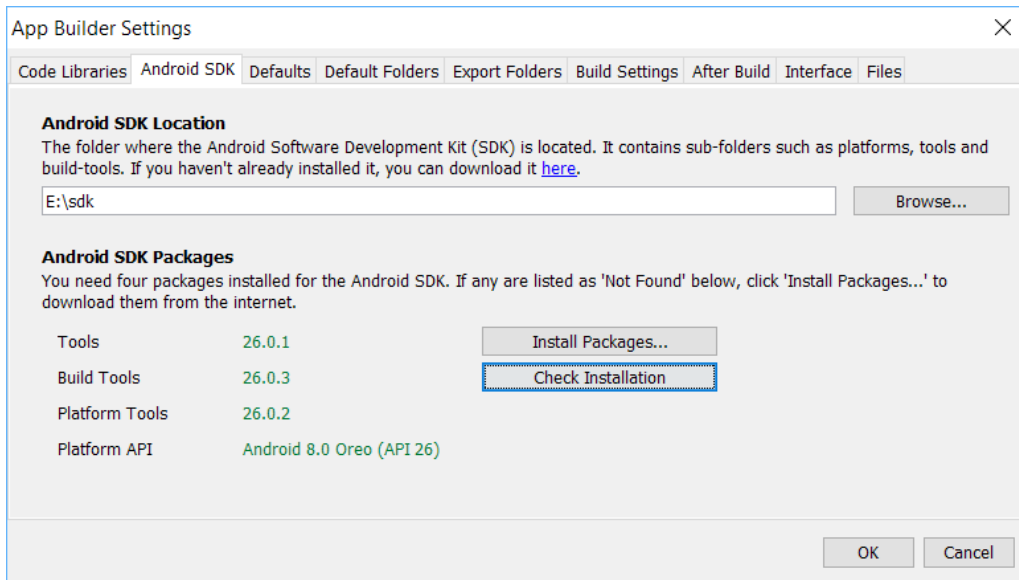
- the internet connection is not working, or
- you do not have enough space on your hard disk.

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 of 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 Dictionary App Builder.

3. Linux Installation

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

1. Dictionary 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 Dictionary 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 instruction 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 don't 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 dictionary-app-builder
```

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

```
$ sudo apt-get install dictionary-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 **dictionary-app-builder** package. If the Android SDK is already installed, Dictionary App Builder can use the current installation.

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

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

Set the `ANDROID_HOME` environment variable to the path of the Android SDK installation to allow Dictionary App Builder to find it automatically. Otherwise you can use the **Tools** ➤ **Settings** dialog in Dictionary 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 Dictionary App Builder, follow the instructions in the first chapter of the document 'Dictionary App Builder – 2 Building Apps'.

5. Troubleshooting

When I try to launch Dictionary 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). Dictionary 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/>