12.Dez 2017

Important Note:
A)Please remove previous versions before installing a new version.
B)Installation path containing “SPACE” char's does not work.

What is LazToApk?

To build a piece of software which can be installed on an android device, you need Java JDK, Android SDK, Android NDK, ANT and laz4android.

LazToApk is a software which will help you to configure all these needed 3rd-Party Tools.

What's new?

See changes file .\changes.txt

Content

Requirements

- Windows (I tested on WinXP and Win7)
- At least 6GByte free disk space.
- A quick internet connection, because 680MByte needs to be downloaded.
- Recommended: a real Android Device because the Android Emluator is very slow!

Note: The whole installation may take 30 minutes!

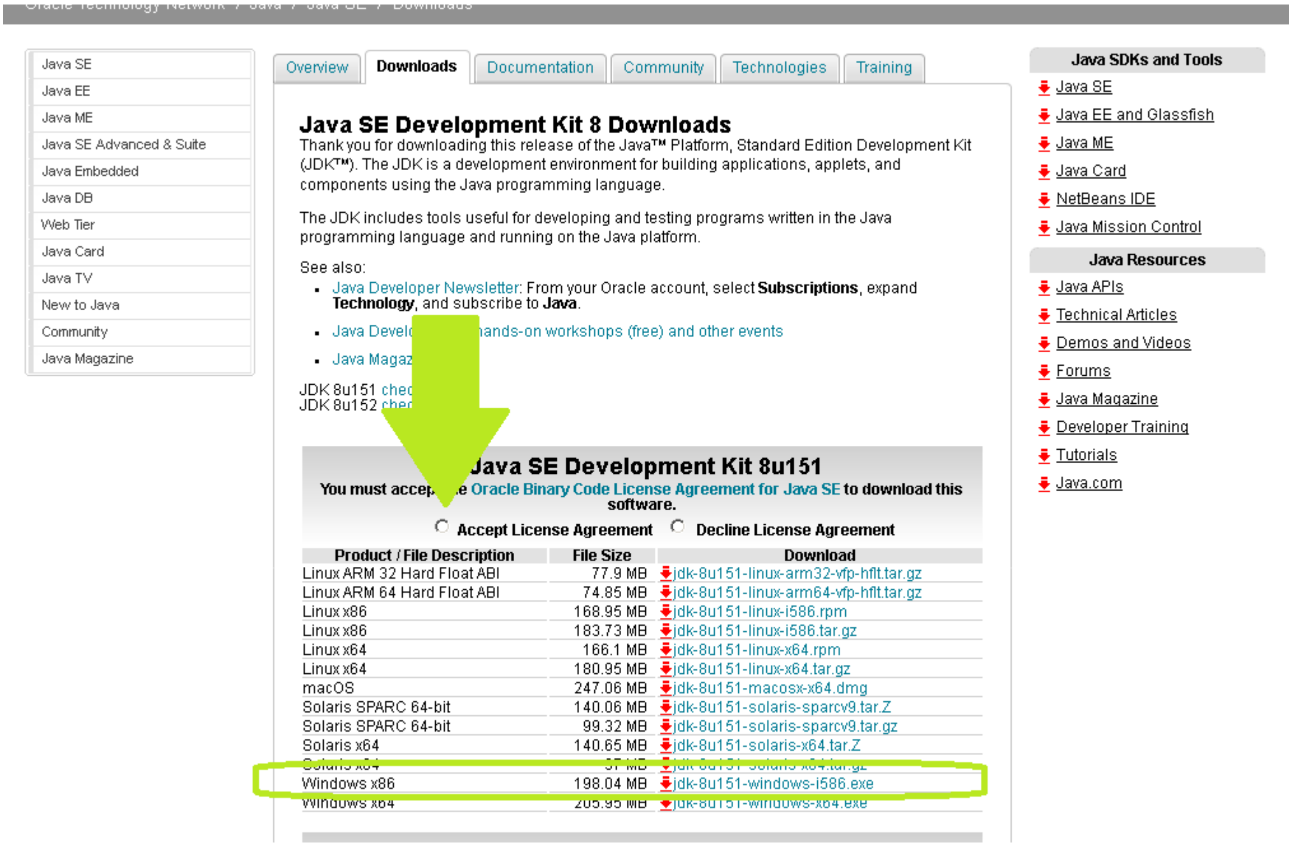
Setup the tools to create an Android App with Lazarus/Free Pascal

Please follow **exactly** this instructions, otherwise the chance is very high that your final app will not work!

I tested on windows xp sp3 and on windows 7.

Step 01: Download&Install JDK

Download latest Java JDK **jdk-8uxxx-windows-i586.exe** (**32bit is important**) from here: → Java JDK 8



Oracle Technology Network / Java / Java SE / Downloads

- Java SE
- Java EE
- Java ME
- Java SE Advanced & Suite
- Java Embedded
- Java DB
- Web Tier
- Java Card
- Java TV
- New to Java
- Community
- Java Magazine

Java SE Development Kit 8 Downloads

Thank you for downloading this release of the Java™ Platform, Standard Edition Development Kit (JDK™). The JDK is a development environment for building applications, applets, and components using the Java programming language.

The JDK includes tools useful for developing and testing programs written in the Java programming language and running on the Java platform.

See also:

- Java Developer Newsletter: From your Oracle account, select **Subscriptions**, expand **Technology**, and subscribe to **Java**.
- Java Develo hands-on workshops (free) and other events
- Java Magaz

JDK 8u151 chec
JDK 8u152 chec

Java SE Development Kit 8u151

You must accep e Oracle Binary Code License Agreement for Java SE to download this software.

○ **Accept License Agreement** ○ **Decline License Agreement**

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

Java SDKs and Tools

- Java SE
- Java EE and Glassfish
- Java ME
- Java Card
- NetBeans IDE
- Java Mission Control

Java Resources

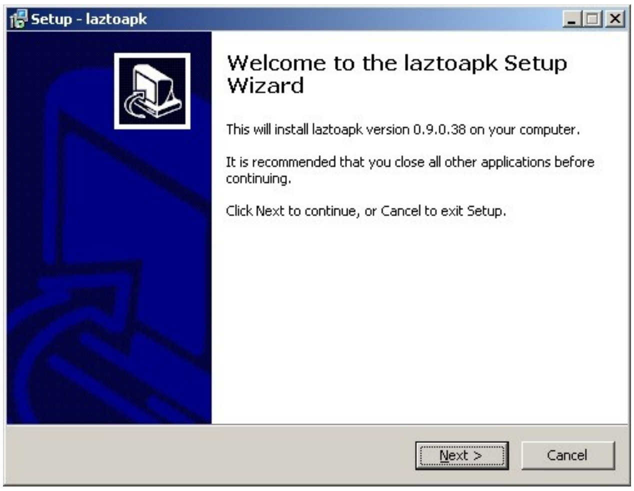
- Java APIs
- Technical Articles
- Demos and Videos
- Forums
- Java Magazine
- Developer Training
- Tutorials
- Java.com

Run the downloaded installer.
It will be installed in to <C:\Program Files\Java\>.

Step 02: Download&Install LazToApk

LazToApk → Download the setup from here. (sourceforge.net)

Run the setup.

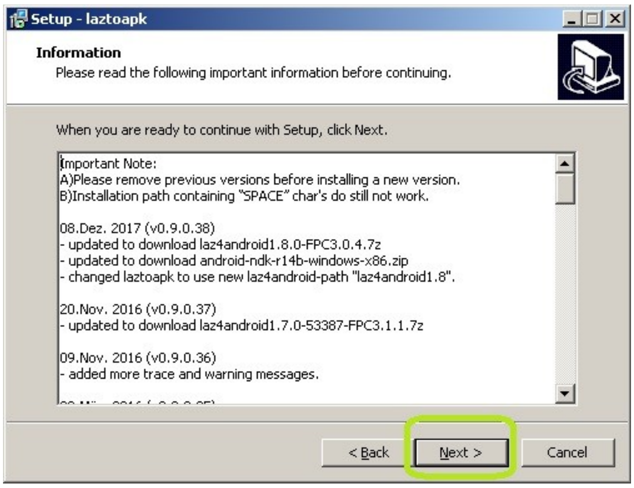


Welcome to the laztoapk Setup Wizard

This will install laztoapk version 0.9.0.38 on your computer.

It is recommended that you close all other applications before continuing.

Click Next to continue, or Cancel to exit Setup.



Information

Please read the following important information before continuing.

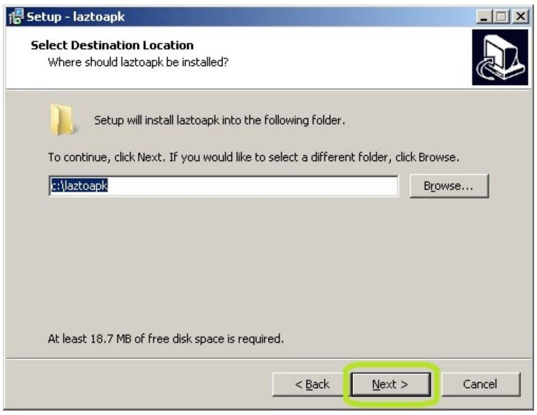
When you are ready to continue with Setup, click Next.

Important Note:
A)Please remove previous versions before installing a new version.
B)Installation path containing "SPACE" char's do still not work.

08.Dez. 2017 (v0.9.0.38)
- updated to download laz4android1.8.0-FPC3.0.4.7z
- updated to download android-ndk-r14b-windows-x86.zip
- changed laztoapk to use new laz4android-path "laz4android1.8".

20.Nov. 2016 (v0.9.0.37)
- updated to download laz4android1.7.0-53387-FPC3.1.1.7z

09.Nov. 2016 (v0.9.0.36)
- added more trace and warning messages.



Select Destination Location

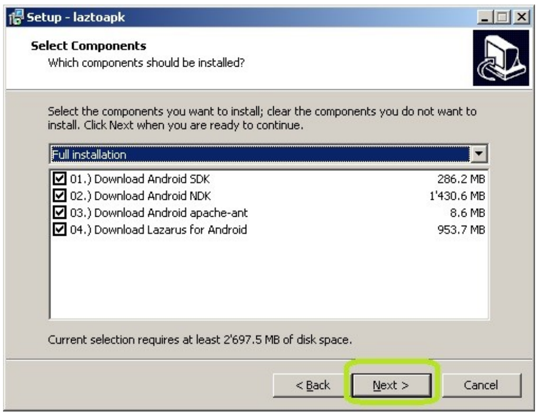
Where should laztoapk be installed?

Setup will install laztoapk into the following folder.

To continue, click Next. If you would like to select a different folder, click Browse.

c:\laztoapk

At least 18.7 MB of free disk space is required.



Select Components

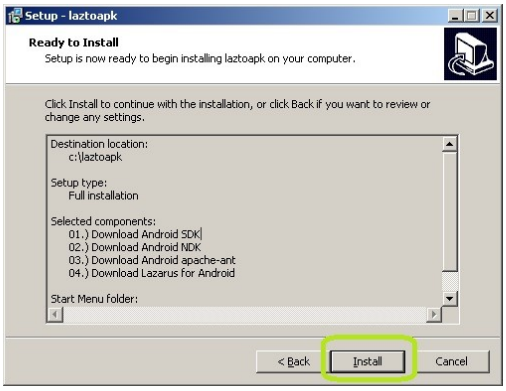
Which components should be installed?

Select the components you want to install; clear the components you do not want to install. Click Next when you are ready to continue.

Full installation

☑ 01.) Download Android SDK	286.2 MB
☑ 02.) Download Android NDK	1'430.6 MB
☑ 03.) Download Android apache-ant	8.6 MB
☑ 04.) Download Lazarus for Android	953.7 MB

Current selection requires at least 2'697.5 MB of disk space.

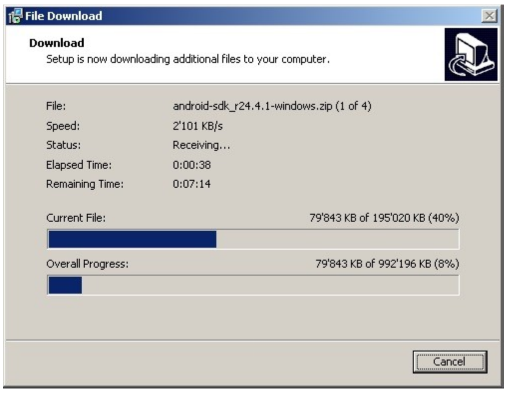


Ready to Install

Setup is now ready to begin installing laztoapk on your computer.

Click Install to continue with the installation, or click Back if you want to review or change any settings.

```
Destination location:
    c:\laztoapk

Setup type:
    Full installation

Selected components:
    01.) Download Android SDK
    02.) Download Android NDK
    03.) Download Android apache-ant
    04.) Download Lazarus for Android

Start Menu folder:
```



Download

Setup is now downloading additional files to your computer.

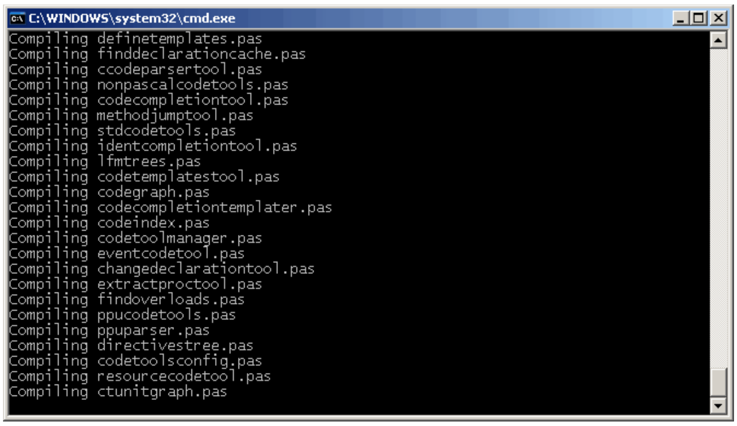
File:	android-sdk_r24.4.1-windows.zip (1 of 4)
Speed:	2'101 KB/s
Status:	Receiving...
Elapsed Time:	0:00:38
Remaining Time:	0:07:14

Current File: 79'843 KB of 195'020 KB (40%)

Overall Progress: 79'843 KB of 992'196 KB (8%)

You can now go for a coffee! No user-action is required the next 20 minutes. The download took on my machine about 16 Minutes. After the download, the files will be un-zipped automatically.

At the end of setup the batch-file <build.bat> gets automatically started.
→ laz4android get's compiled. This may take a while and look's something like this.

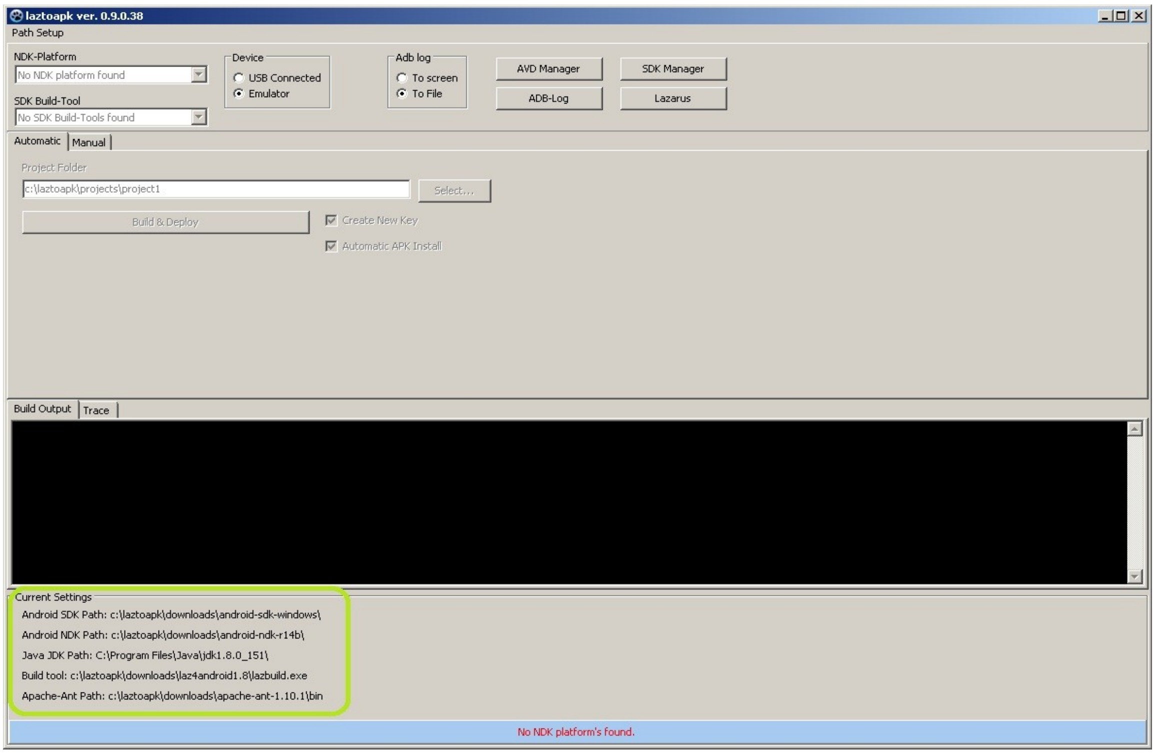


C:\WINDOWS\system32\cmd.exe

```
Compiling definetemplates.pas
Compiling finddeclarationcache.pas
Compiling ccodeparsertool.pas
Compiling nonpascalcodetools.pas
Compiling codecompletiontool.pas
Compiling methodjumptool.pas
Compiling stdcodetools.pas
Compiling identcompletiontool.pas
Compiling lfmtrees.pas
Compiling codetemplatestool.pas
Compiling codegraph.pas
Compiling codecompletiontemplater.pas
Compiling codeindex.pas
Compiling codetoolmanager.pas
Compiling eventcodetool.pas
Compiling changedeclarationtool.pas
Compiling extractproctool.pas
Compiling findoverloads.pas
Compiling ppucodetools.pas
Compiling ppuparser.pas
Compiling directivestree.pas
Compiling codetoolsconfig.pas
Compiling resourcecodetool.pas
Compiling ctunitgraph.pas
```

Step 03: Start&Configure LazToApk for the first time

The application <LazToApk> will be started.
LazToApk will verify if the folder's for JDK,SDK,NDK,ANT and the tool lazbuild.exe is available.
If everything went fine, it should look like this:
(If not, then a path setup dialog will show up and you must select the correct path manually.)



NDK-Platform: No NDK platform found

SDK Build-Tool: No SDK Build-Tools found

Device: ○ USB Connected ● Emulator

Adb log: ○ To screen ● To File

Project Folder: c:\laztoapk\projects\project1

☑ Create New Key

☑ Automatic APK Install

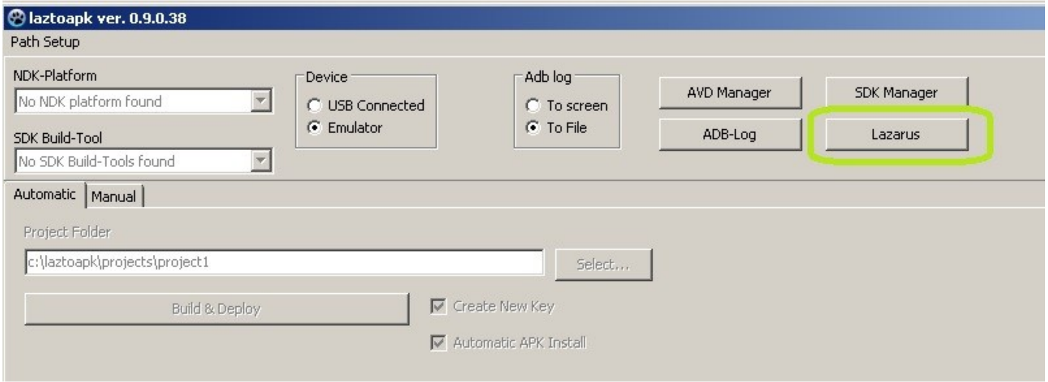
Current Settings

Android SDK Path: c:\laztoapk\downloads\android-sdk-windows\
Android NDK Path: c:\laztoapk\downloads\android-ndk-r14b\
Java JDK Path: C:\Program Files\Java\jdk1.8.0_151\
Build tool: c:\laztoapk\downloads\laz4android1.8\lazbuild.exe
Apache-Ant Path: c:\laztoapk\downloads\apache-ant-1.10.1\bin

No NDK platform's found.

Step 04: Start Lazarus and install packages.

Start Lazarus by clicking onto Button <Lazarus>.



NDK-Platform: No NDK platform found

SDK Build-Tool: No SDK Build-Tools found

Device: ○ USB Connected ● Emulator

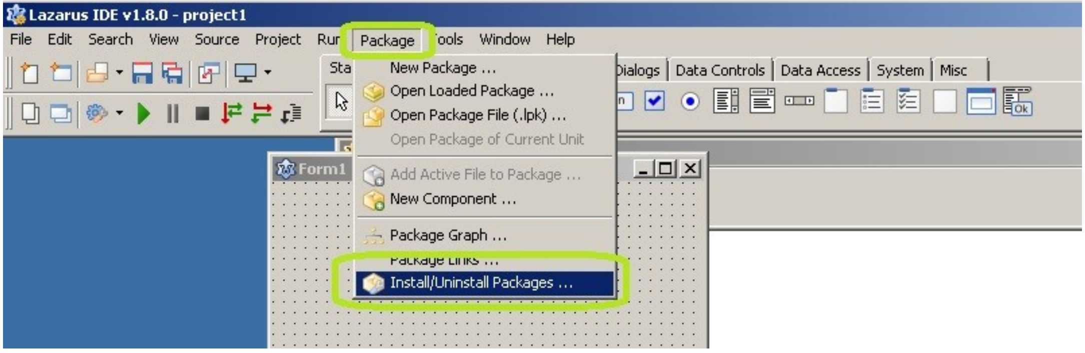
Adb log: ○ To screen ● To File

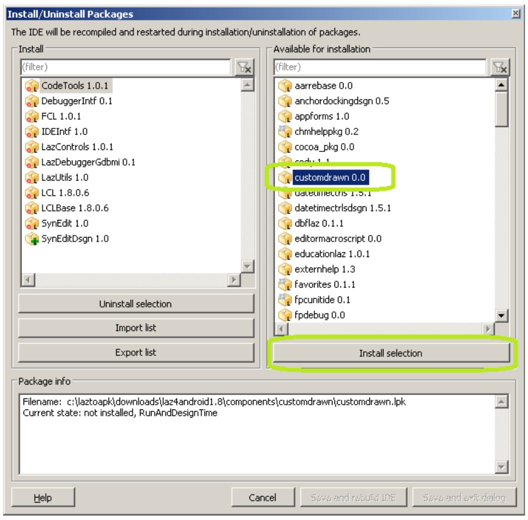
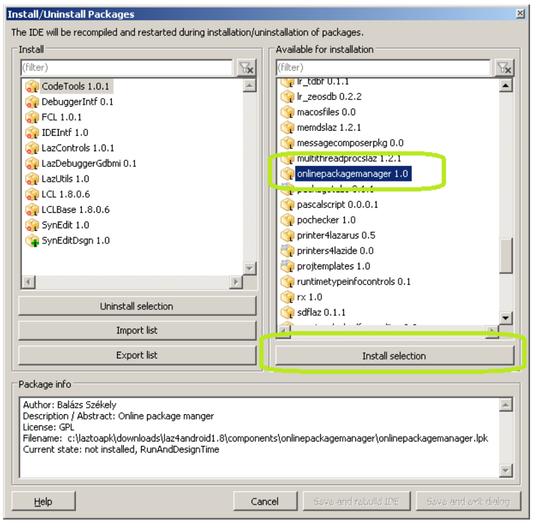
Project Folder: c:\laztoapk\projects\project1

☑ Create New Key

☑ Automatic APK Install

The Lazarus IDE should show up. Choose <Package>, <Install/Uninstall Packages>.

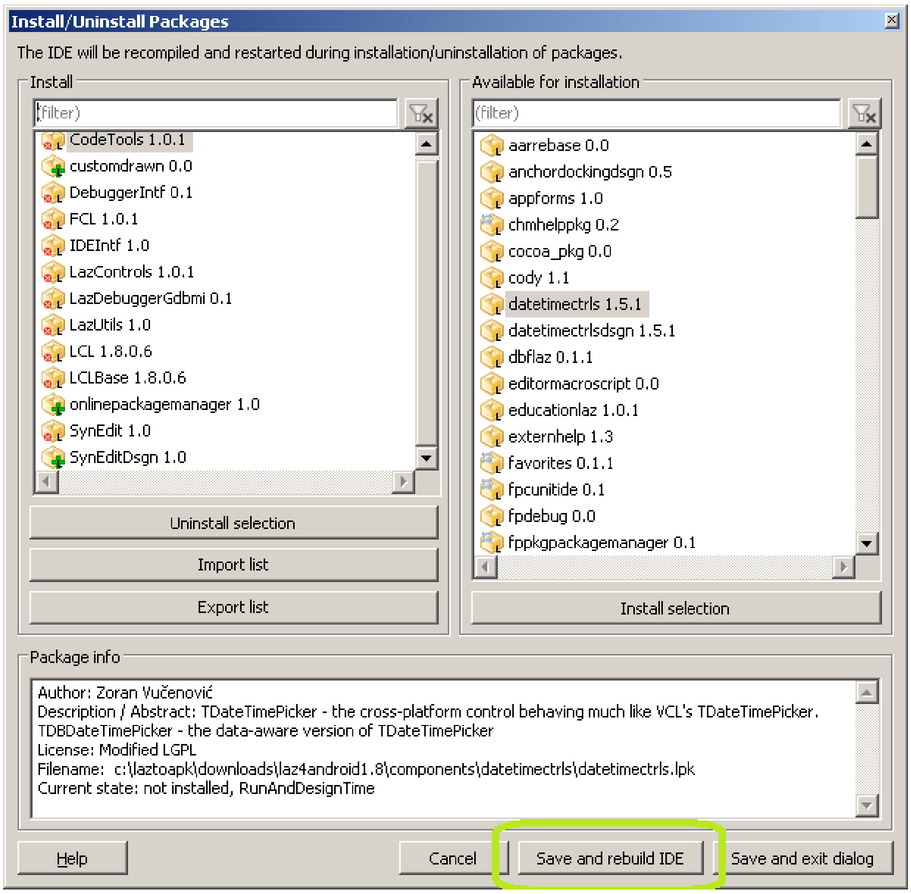


Select the package <CustomDrawn> and Press button <Install Selection>.	Select the package <OnlinePackageManager> and Press button <Install Selection>.
	

Filename: c:\laztoapk\downloads\laz4android1.8\components\customdrawn\customdrawn.lpk
Current state: not installed, RunAndDesignTime

Author: Balázs Székely
Description / Abstract: Online package manger
License: GPL
Filename: c:\laztoapk\downloads\laz4android1.8\components\onlinepackagemanager\onlinepackagemanager.lpk
Current state: not installed, RunAndDesignTime

Press Button <Save and Rebuild IDE>



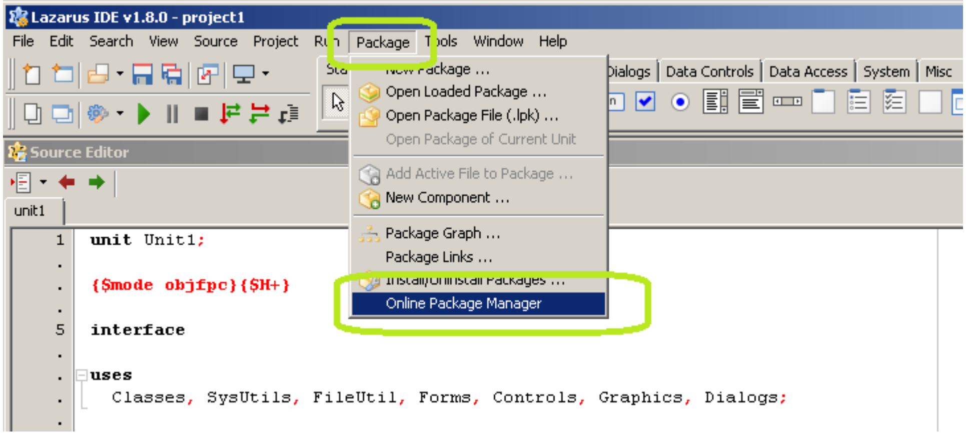
Author: Zoran Vučenović
Description / Abstract: TDateTimePicker - the cross-platform control behaving much like VCL's TDateTimePicker.
TDBDateTimePicker - the data-aware version of TDateTimePicker
License: Modified LGPL
Filename: c:\laztoapk\downloads\laz4android1.8\components\datetimectrls\datetimectrls.lpk
Current state: not installed, RunAndDesignTime

The Lazarus IDE gets rebuilt and restarted. This may take a while.

Step 05: Install LAMW (Lazarus Android Module Wizard)

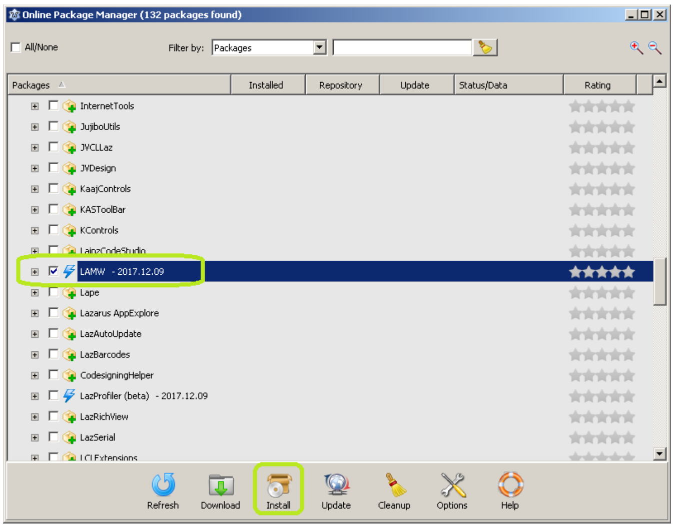
Since the development of the CustomDrawn-Components seems to be “stalled”, I will try to move to LAMW. This move is not finished yet and will only happen with the help from the community.

Choose <Package> <Online Package Manager>



```
unit Unit1;

{$mode objfpc}{$H+}

interface

uses
  Classes, SysUtils, FileUtil, Forms, Controls, Graphics, Dialogs;
```

Select “LAMW” and press “install”.

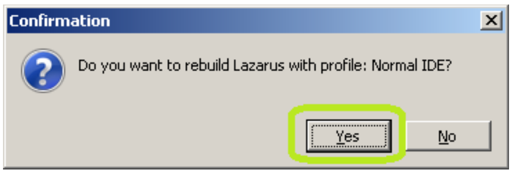


Online Package Manager (132 packages found)

□ All/None   Filter by: Packages

Packages	Installed	Repository	Update	Status/Data	Rating
□ InternetTools					
□ JujiboUtils					
□ JVCLLaz					
□ JVDesign					
□ KaajControls					
□ KASToolBar					
□ KControls					
□ LainzCodeStudio					
☑ LAMW - 2017.12.09					
□ Lape					
□ Lazarus AppExplore					
□ LazAutoUpdate					
□ LazBarcodes					
□ CodesigningHelper					
□ LazProfiler (beta) - 2017.12.09					
□ LazRichView					
□ LazSerial					
□ LCLExtensions					

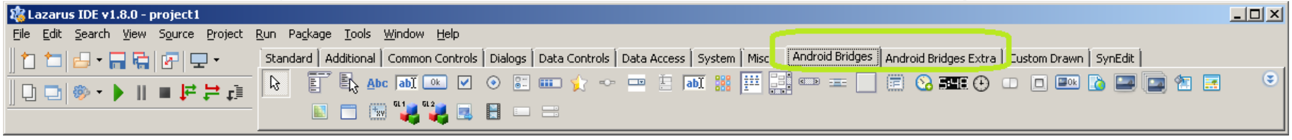
The package get’s downloaded and installed. After a while the following dialoge pops up. Press <Yes>.



Confirmation

Do you want to rebuild Lazarus with profile: Normal IDE?

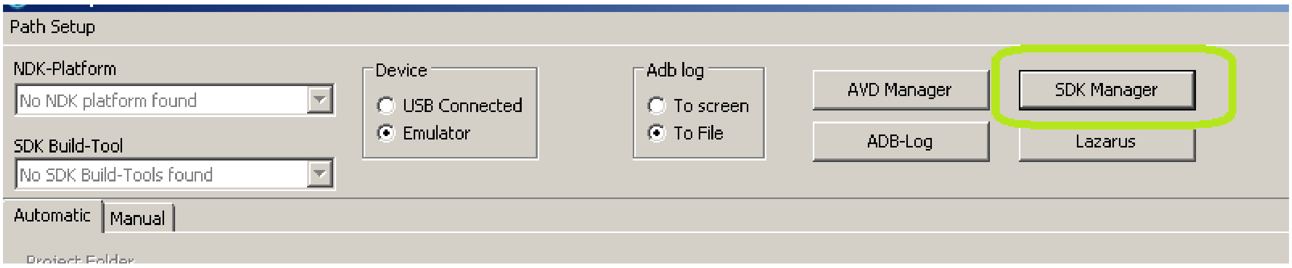
The Lazarus IDE gets rebuilt and should now have new component-tabs.



Lazarus IDE v1.8.0 - project1

Step 06: Start SDK-Manager and install API's

Close Lazarus IDE.
Now LazToApk will look like this. It's time to start the <SDK Manager>.



Path Setup

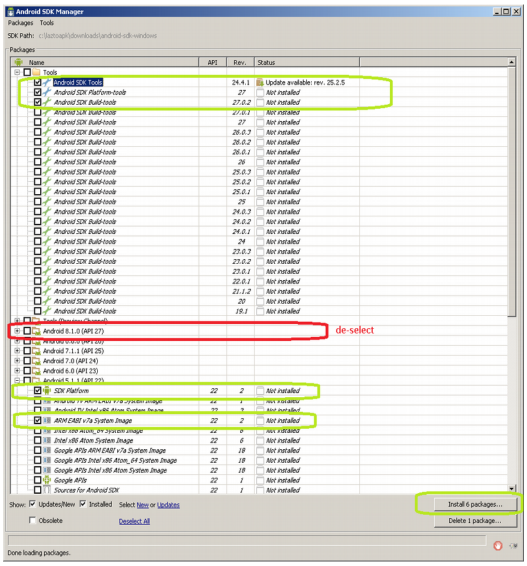
NDK-Platform: No NDK platform found

SDK Build-Tool: No SDK Build-Tools found

Device: ○ USB Connected ● Emulator

Adb log: ○ To screen ● To File

Select the following packages. (→ you can try some other's but I did not test with other version's!!!!)



Android SDK Manager

Packages Tools

SDK Path: c:\laztoapk\downloads\android-sdk-windows

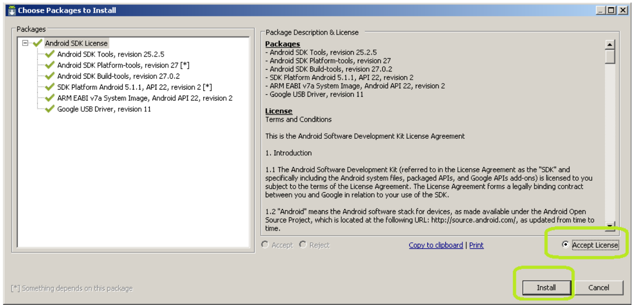
Packages

Name	API	Rev.	Status
□ Tools			
☑ Android SDK Tools		24.4.1	Update available: rev. 25.2.5
☑ Android SDK Platform-tools		27	Not installed
☑ Android SDK Build-tools		27.0.2	Not installed
□ Android SDK Build-tools		27.0.1	Not installed
□ Android SDK Build-tools		27	Not installed
□ Android SDK Build-tools		26.0.3	Not installed
□ Android SDK Build-tools		26.0.2	Not installed
□ Android SDK Build-tools		26.0.1	Not installed
□ Android SDK Build-tools		26	Not installed
□ Android SDK Build-tools		25.0.3	Not installed
□ Android SDK Build-tools		25.0.2	Not installed
□ Android SDK Build-tools		25.0.1	Not installed
□ Android SDK Build-tools		25	Not installed
□ Android SDK Build-tools		24.0.3	Not installed
□ Android SDK Build-tools		24.0.2	Not installed
□ Android SDK Build-tools		24.0.1	Not installed
□ Android SDK Build-tools		24	Not installed
□ Android SDK Build-tools		23.0.3	Not installed
□ Android SDK Build-tools		23.0.2	Not installed
□ Android SDK Build-tools		23.0.1	Not installed
□ Android SDK Build-tools		22.0.1	Not installed
□ Android SDK Build-tools		21.1.2	Not installed
□ Android SDK Build-tools		20	Not installed
□ Android SDK Build-tools		19.1	Not installed
□ Tools (Preview Channel)			
□ Android 8.1.0 (API 27)			
□ Android 8.0.0 (API 26)			
□ Android 7.1.1 (API 25)			
□ Android 7.0 (API 24)			
□ Android 6.0 (API 23)			
□ Android 5.1.1 (API 22)			
☑ SDK Platform	22	2	Not installed
□ Android TV ARM EABI v7a System Image	22	1	Not installed
□ Android TV Intel x86 Atom System Image	22	3	Not installed
☑ ARM EABI v7a System Image	22	2	Not installed
□ Intel x86 Atom_64 System Image	22	6	Not installed
□ Intel x86 Atom System Image	22	6	Not installed
□ Google APIs ARM EABI v7a System Image	22	18	Not installed
□ Google APIs Intel x86 Atom_64 System Image	22	18	Not installed
□ Google APIs Intel x86 Atom System Image	22	18	Not installed
□ Google APIs	22	1	Not installed
□ Sources for Android SDK	22	1	Not installed

de-select

Done loading packages.

The following dialogs will show up.



Choose Packages to Install

Packages

- Android SDK License
  - Android SDK Tools, revision 25.2.5
  - Android SDK Platform-tools, revision 27 [*]
  - Android SDK Build-tools, revision 27.0.2
  - SDK Platform Android 5.1.1, API 22, revision 2 [*]
  - ARM EABI v7a System Image, Android API 22, revision 2
  - Google USB Driver, revision 11

Package Description & License

Packages
- Android SDK Tools, revision 25.2.5
- Android SDK Platform-tools, revision 27
- Android SDK Build-tools, revision 27.0.2
- SDK Platform Android 5.1.1, API 22, revision 2
- ARM EABI v7a System Image, Android API 22, revision 2
- Google USB Driver, revision 11

License
Terms and Conditions

This is the Android Software Development Kit License Agreement

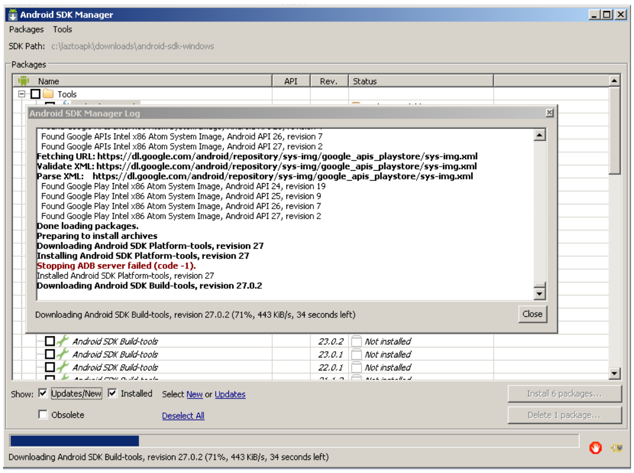
1. Introduction

1.1 The Android Software Development Kit (referred to in the License Agreement as the "SDK" and specifically including the Android system files, packaged APIs, and Google APIs add-ons) is licensed to you subject to the terms of the License Agreement. The License Agreement forms a legally binding contract between you and Google in relation to your use of the SDK.

1.2 "Android" means the Android software stack for devices, as made available under the Android Open Source Project, which is located at the following URL: http://source.android.com/, as updated from time to time.

[*] Something depends on this package

Accept Licence and press <Install>.



Android SDK Manager

Packages Tools

SDK Path: c:\laztoapk\downloads\android-sdk-windows

Android SDK Manager Log

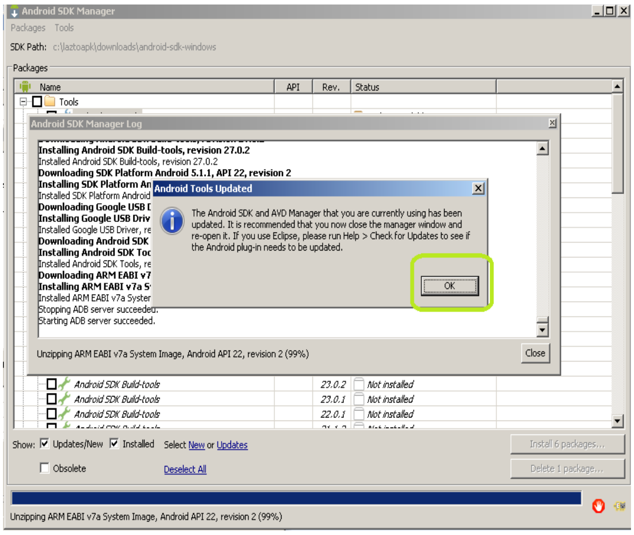
```
 Found Google APIs Intel x86 Atom System Image, Android API 26, revision 7
 Found Google APIs Intel x86 Atom System Image, Android API 27, revision 2
Fetching URL: https://dl.google.com/android/repository/sys-img/google_apis_playstore/sys-img.xml
Validate XML: https://dl.google.com/android/repository/sys-img/google_apis_playstore/sys-img.xml
Parse XML:    https://dl.google.com/android/repository/sys-img/google_apis_playstore/sys-img.xml
 Found Google Play Intel x86 Atom System Image, Android API 24, revision 19
 Found Google Play Intel x86 Atom System Image, Android API 25, revision 9
 Found Google Play Intel x86 Atom System Image, Android API 26, revision 7
 Found Google Play Intel x86 Atom System Image, Android API 27, revision 2
Done loading packages.
Preparing to install archives
Downloading Android SDK Platform-tools, revision 27
Installing Android SDK Platform-tools, revision 27
Stopping ADB server failed (code -1).
Installed Android SDK Platform-tools, revision 27
Downloading Android SDK Build-tools, revision 27.0.2
```

Downloading Android SDK Build-tools, revision 27.0.2 (71%, 443 KiB/s, 34 seconds left)

Name	API	Rev.	Status
□ Android SDK Build-tools		23.0.2	Not installed
□ Android SDK Build-tools		23.0.1	Not installed
□ Android SDK Build-tools		22.0.1	Not installed

Downloading Android SDK Build-tools, revision 27.0.2 (71%, 443 KiB/s, 34 seconds left)

Just wait, this will take a some time...



Android SDK Manager

Packages Tools

SDK Path: c:\laztoapk\downloads\android-sdk-windows

Android SDK Manager Log

```
Installing Android SDK Build-tools, revision 27.0.2
Installed Android SDK Build-tools, revision 27.0.2
Downloading SDK Platform Android 5.1.1, API 22, revision 2
Installing SDK Platform An
Installed SDK Platform Android
Downloading Google USB D
Installing Google USB Driv
Installed Google USB Driver, re
Downloading Android SDK
Installing Android SDK Too
Installed Android SDK Tools, re
Downloading ARM EABI v7
Installing ARM EABI v7a S
Installed ARM EABI v7a Syster
Stopping ADB server succeeded.
Starting ADB server succeeded.
```

Android Tools Updated

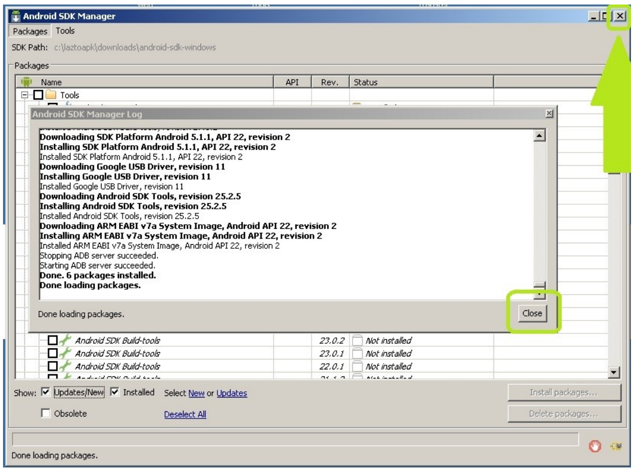
The Android SDK and AVD Manager that you are currently using has been updated. It is recommended that you now close the manager window and re-open it. If you use Eclipse, please run Help > Check for Updates to see if the Android plug-in needs to be updated.

Unzipping ARM EABI v7a System Image, Android API 22, revision 2 (99%)

Name	API	Rev.	Status
□ Android SDK Build-tools		23.0.2	Not installed
□ Android SDK Build-tools		23.0.1	Not installed
□ Android SDK Build-tools		22.0.1	Not installed

Unzipping ARM EABI v7a System Image, Android API 22, revision 2 (99%)

Press <OK>



Android SDK Manager

Packages Tools

SDK Path: c:\laztoapk\downloads\android-sdk-windows

Android SDK Manager Log

```
Downloading SDK Platform Android 5.1.1, API 22, revision 2
Installing SDK Platform Android 5.1.1, API 22, revision 2
Installed SDK Platform Android 5.1.1, API 22, revision 2
Downloading Google USB Driver, revision 11
Installing Google USB Driver, revision 11
Installed Google USB Driver, revision 11
Downloading Android SDK Tools, revision 25.2.5
Installing Android SDK Tools, revision 25.2.5
Installed Android SDK Tools, revision 25.2.5
Downloading ARM EABI v7a System Image, Android API 22, revision 2
Installing ARM EABI v7a System Image, Android API 22, revision 2
Installed ARM EABI v7a System Image, Android API 22, revision 2
Stopping ADB server succeeded.
Starting ADB server succeeded.
Done. 6 packages installed.
Done loading packages.
```

Done loading packages.

Name	API	Rev.	Status
□ Android SDK Build-tools		23.0.2	Not installed
□ Android SDK Build-tools		23.0.1	Not installed
□ Android SDK Build-tools		22.0.1	Not installed

Done loading packages.

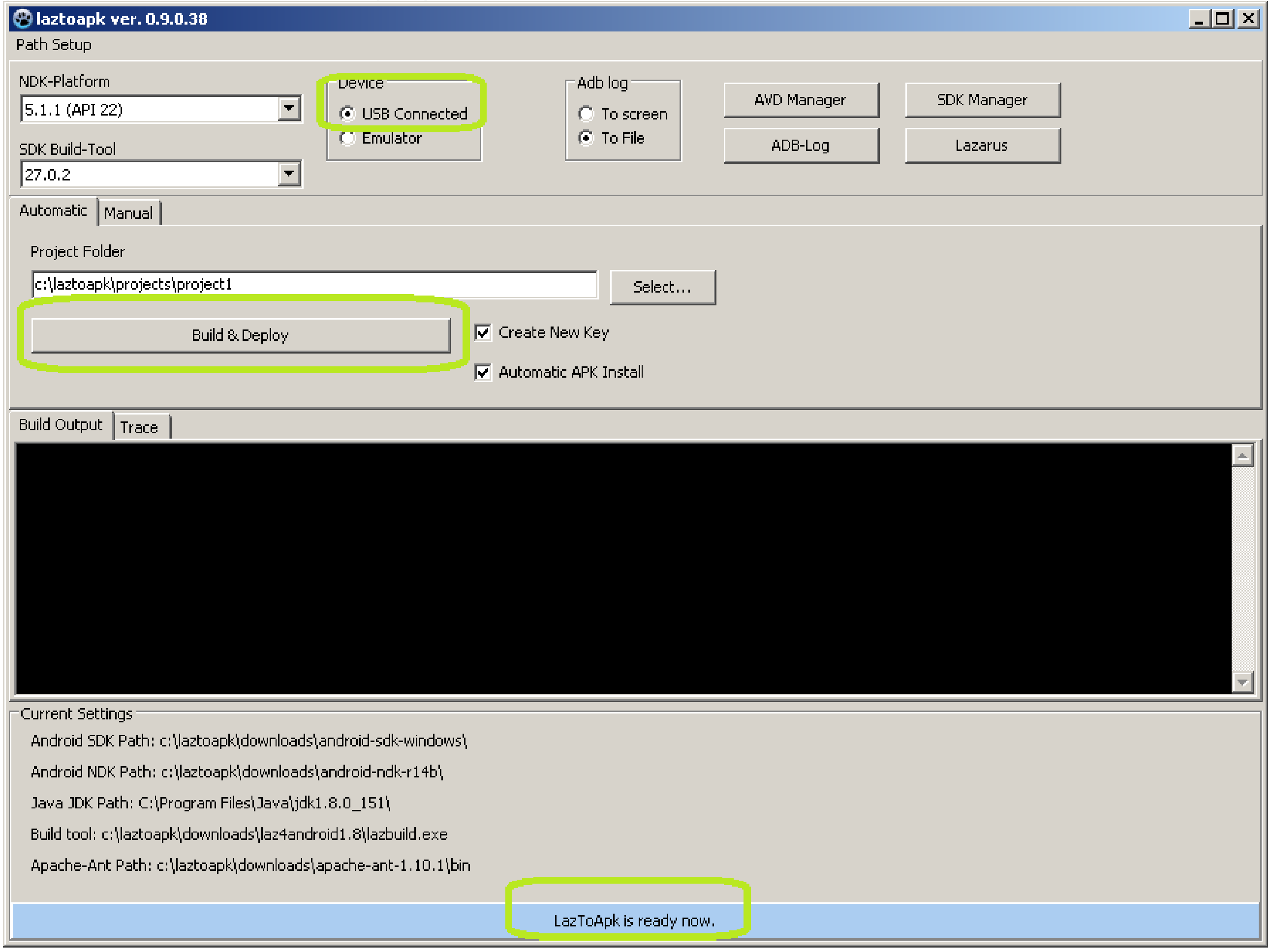
Now close the SDK Manager.

Step 07: Restart LazToApk

Close LazToApk.
Close the setup.
Start LazToApk again.
Connect your android device to the computer. (usb-connection)

Step 08: Build your first android app

Select <USB connected> and
press button „Build&Deploy“.



NDK-Platform: 5.1.1 (API 22)

SDK Build-Tool: 27.0.2

● USB Connected
○ Emulator

○ To screen
● To File

Project Folder: c:\laztoapk\projects\project1

☑ Create New Key

☑ Automatic APK Install

Current Settings

Android SDK Path: c:\laztoapk\downloads\android-sdk-windows\

Android NDK Path: c:\laztoapk\downloads\android-ndk-r14b\

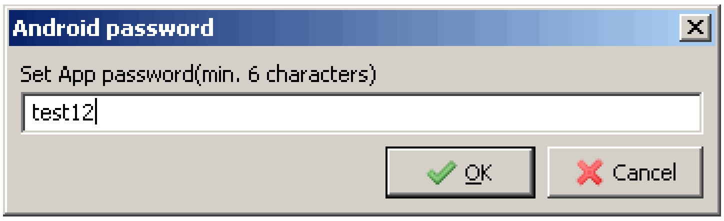
Java JDK Path: C:\Program Files\Java\jdk1.8.0_151\

Build tool: c:\laztoapk\downloads\laz4android1.8\lazbuild.exe

Apache-Ant Path: c:\laztoapk\downloads\apache-ant-1.10.1\bin

LazToApk is ready now.

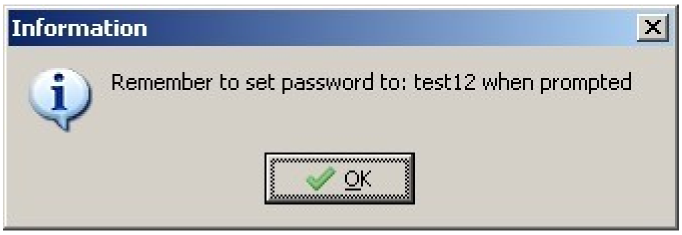
In the following dialog, define a password for your app and press button <OK>.



Set App password(min. 6 characters)

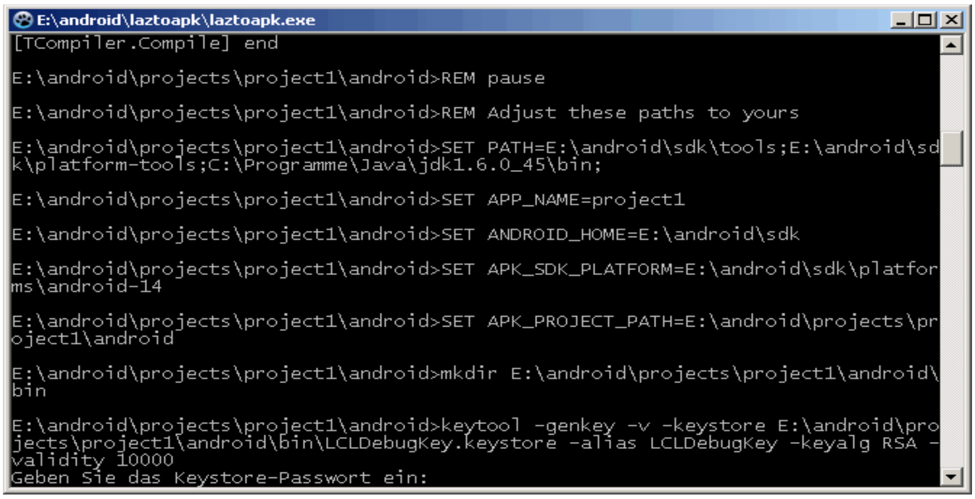
test12

The following info message will appear.



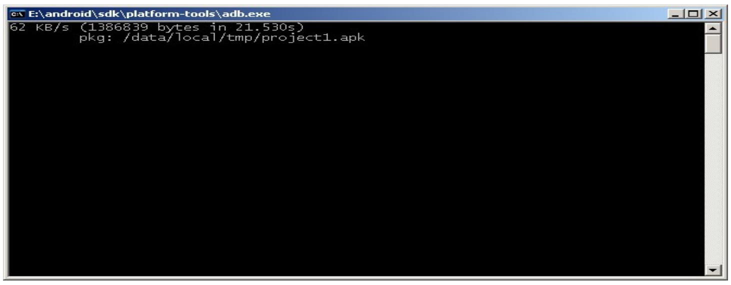
Remember to set password to: test12 when prompted

You have to enter the same password as before twice in the command windows

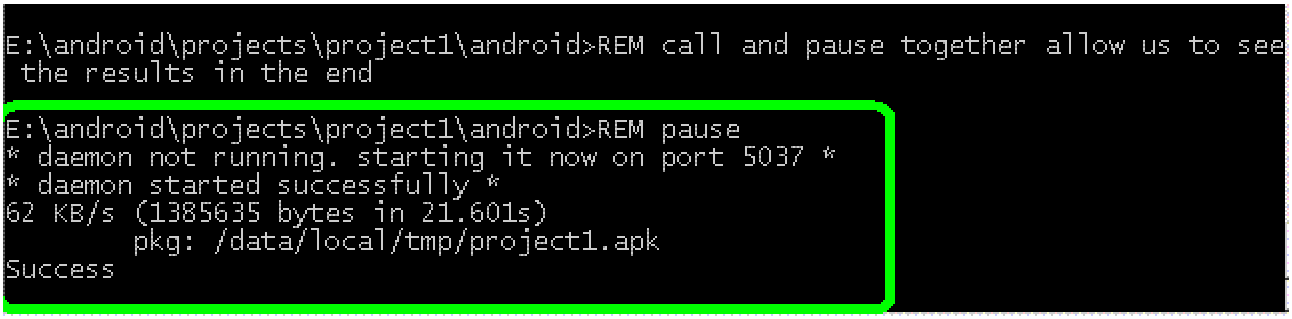


```
[TCompiler.Compile] end

E:\android\projects\project1\android>REM pause

E:\android\projects\project1\android>REM Adjust these paths to yours

E:\android\projects\project1\android>SET PATH=E:\android\sdk\tools;E:\android\sd
k\platform-tools;C:\Programme\Java\jdk1.6.0_45\bin;

E:\android\projects\project1\android>SET APP_NAME=project1

E:\android\projects\project1\android>SET ANDROID_HOME=E:\android\sdk

E:\android\projects\project1\android>SET APK_SDK_PLATFORM=E:\android\sdk\platfor
ms\android-14

E:\android\projects\project1\android>SET APK_PROJECT_PATH=E:\android\projects\pr
oject1\android

E:\android\projects\project1\android>mkdir E:\android\projects\project1\android\
bin

E:\android\projects\project1\android>keytool -genkey -v -keystore E:\android\pro
jects\project1\android\bin\LCLDebugKey.keystore -alias LCLDebugKey -keyalg RSA -
validity 10000
Geben Sie das Keystore-Passwort ein:
```

and do some more input as requested.
If everything works as expected, then it should look like this:



```
62 KB/s (1386839 bytes in 21.530s)
        pkg: /data/local/tmp/project1.apk
```

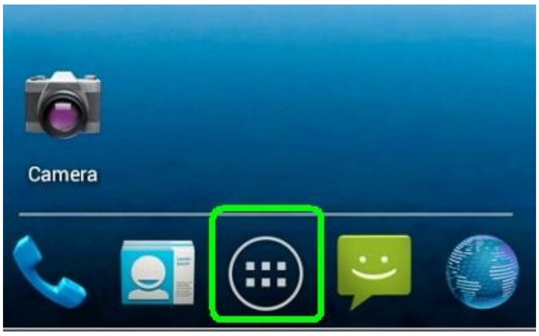


```
E:\android\projects\project1\android>REM call and pause together allow us to see
 the results in the end

E:\android\projects\project1\android>REM pause
* daemon not running. starting it now on port 5037 *
* daemon started successfully *
62 KB/s (1385635 bytes in 21.601s)
        pkg: /data/local/tmp/project1.apk
Success
```

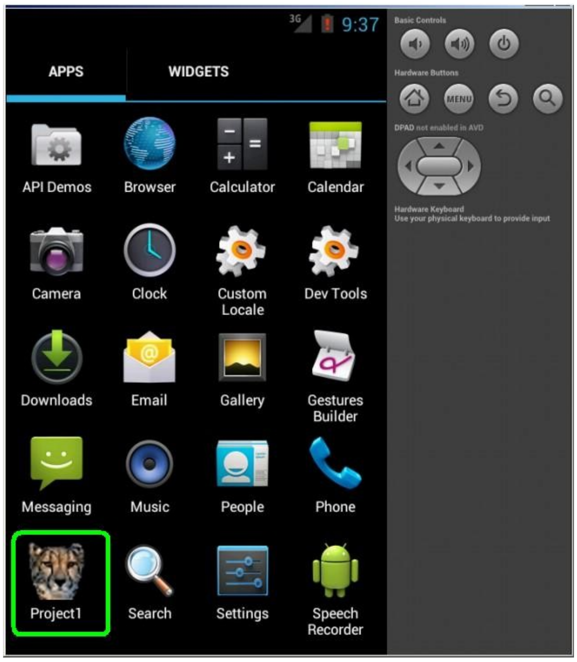
Well done, the app is now installed.

Step 09: Run the app

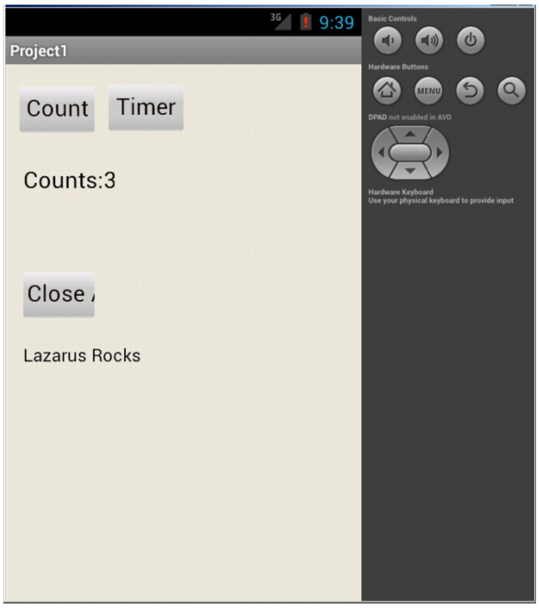
Let's run the app. Click onto the following icon:



Then click on „Project1“.



And enjoy your first android application.



Counts:3

Lazarus Rocks