How to Bundle your Palm OS application with StyleTap for Android

This document describes how to bundle your Palm OS application with StyleTap using the StyleTap for Android Wrapper SDK which is contained in a file named StyleTapAndroidWrapperSDK.zip.

The following assumes that you have installed the Android Developer Tools (ADT) including Eclipse and the Android SDK on your desktop machine. You do NOT need to install the Android Native Development Kit (NDK). To make sure that you've installed them correctly, we recommend that you try creating and running a default Android Application Project using Eclipse before going any further.

It is also possible to build your APK package (i.e. an Android application installation package) from a command line using Apache Ant (which you would need to download and install), but this is beyond the scope of this document.

(1) Unzip the file StyleTapAndroidWrapperSDK.zip. This contains the subdirectories which make up an Android project.

(2) Create an Eclipse project based on the StyleTapAndroidWrapperSDK.
  - In Eclipse, select File -> New -> Project which starts the "New Project" wizard screen. Do not choose File->New->Android Application Project.
  - Under Android, select "Android Project from Existing Code" and "Next" which will bring you to the "Import Projects" screen.
  - Click on "Browse" next to "Root Directory:" and select the location where you unzipped StyleTapAndroidWrapperSDK.   Make sure   that you choose the option "Copy projects into workspace" and click on "Finish".

(3) Eclipse should have created a new project named "com.StyleTap.StyleTap.StyleTap". This is only the name of the project and does not affect what goes into the final APK package and may be left as is. If you wish to rename the project then highlight the project name "com.StyleTap.StyleTap.StyleTap" within the Package Explorer window (leftmost window) and then select File -> Rename. This will display a window titled "Rename Java Project". You may rename this project to anything you like, but be sure that the option "Update references" is NOT selected.

(4) Next you must change the package name. The package name uniquely identifies your application to Android. Right click on your project name in the Package Explorer window and then select Android Tools -> Rename Application Package which will display the "Rename Application Package" dialog. It is currently set to "com.YourCompany.YourAppName", so change it appropriately using no spaces. This should result in the package name being changed in both copies of AndroidManifiest.xml in the project (one in the base subdirectory of the project and the other in the bin subdirectory under it).

(5) Copy your Palm prc and pdb files to the "assets" subdirectory in the project.

There is an Android restriction (in versions 2.2 and earlier) that a file in the assets subdirectory cannot exceed 1 MB. When building an APK package, the package builder compresses the files that go into the APK and Android 2.2 (and earlier) cannot decompress asset files bigger than 1 MB. There are various ways to get around this problem which are not discussed in this document e.g. if you use the command line tools to build the package instead of using Eclipse, compression can be turned off.

Note: Each application on an   Android device has its own data subdirectory and this is where StyleTap stores all Palm databases. The first time StyleTap is run on a device, all the files in the assets subdirectory will be copied to StyleTap's data subdirectory. StyleTap will also copy the files (and overwrite any existing files) if the Version Code in the AndroidManifest.xml   has changed. Again, please be aware there are two copies of AndroidManifest.xml in the project (one in the base subdirectory of the project and the other in the bin subdirectory under it) and both of these need to be modified if you are changing the Version Code.

(6) You will probably want your application's icon to appear on your device's application launcher screen

instead of StyleTap's. You will need to create three versions with different sizes: 36 x 36, 48 x 48 and 72 x 72 and they all need to be named "icon.png" and should replace the icon.png file in res/drawable-hdpi (72 x 72), res/drawable-ldpi (36 x 36) and res/drawable-mdpi (48 x 48).

(7) The Android application launcher screen displays some text beneath each application icon and so if you changed the launcher icons in step (6), you will want to change this text as well. You will need to change the value of the "app_name" string in res/values/strings.xml from "StyleTapWrapper" to the application name you want displayed.

(8) By default, StyleTap tries to run the StyleTap Launcher (STLaunch.prc) when it starts. However, you can override this by specifying "DefaultLaunchAppDbName=YourAppDatabaseName;" (where YourAppDatabaseName is the database name of your application) in the StyleTapInit.ini file in the assets subdirectory.

(9) If you belong to StyleTap's OEM program and have a StyleTap OEM certificate, you should copy it to the assets subdirectory. If you want more information on joining the StyleTap OEM program, please contact Justin in sales (sales@styletap.com).

(10) If you have a StyleTap corporate account and use auto-enrollment (over the internet), then you will have a credentials prc file which should also be copied to assets subdirectory. For more information on StyleTap corporate accounts and auto-enrollment, please contact Justin in sales (sales@styletap.com).

(11) If StyleTap is run and there is no StyleTap OEM certificate and it is unregistered, StyleTap will display an About box showing how much time is left in the trial period. To suppress this, specify "ShowAboutStyleTapOnStartup=No;" in the StyleTapInit.ini file in the assets subdirectory.

(12) This first time StyleTap is run, it will display StyleTap's copyright agreement. If you do not want this to display, delete iphonelicense.prc from the assets subdirectory.

(13) WebTools.prc is a Palm OS program included in the assets subdirectory. When it is run, it acts as a web server, so that you can upload/download Palm databases to/from StyleTap using a web browser on a desktop machine. You may delete this if you wish.

(14) If you are including only one Palm application, so that you have no need to switch between Palm applications then you may choose to also delete the StyleTap Launcher (STLaunch.prc) from the assets subdirectory.

(15) To build and sign your APK package, please read "Compile and sign with Eclipse ADT" in http://developer.android.com/tools/publishing/app-signing.html#ExportWizard.

Advanced Options

(16) By including the following text in the StyleTapInit.ini file (in the StyleTapAppTemplate/db subdirectory), you can cause various buttons to not appear:

- "DisableHomeExitButton=Yes;" causes the "Quit" to not appear.

- "DisableMenuButton=Yes;" causes the "Menu" button to not appear.

- "DisableNavUpButton=Yes;" causes the up arrow button to not appear.

- "DisableNavDownButton=Yes;" causes the down arrow button to not appear.

- "DisableNavLeftButton=Yes;" causes the left arrow button to not appear.

- "DisableNavRightButton=Yes;" causes the right arrow button to not appear.

- "DisableNavCentreButton=Yes;" causes the button in the middle of the arrow buttons to not appear.

- "DisableF1Button=Yes;" causes the "F1" button to not appear.

- "DisableF2Button=Yes;" causes the "F2" button to not appear.

- "DisableF3Button=Yes;" causes the "F3" button to not appear.

- "DisableF4Button=Yes;" causes the "F4" button to not appear.

(17) On Android devices, pressing the Home key notifies StyleTap that is about to be put into the background. When this happens, StyleTap will launch the running Palm application with a sysAppLaunchCmdSaveData launch code. Most Palm applications call FrmSaveAllForms in response to this and this results in a frmSaveEvent to be sent to each of the Palm application's open forms. This gives the Palm application the opportunity to save any buffered data to its databases. StyleTap then flushes all databases to files.

StyleTap is left running in the background until the user restarts it or   will be automatically killed   if memory runs low or the user explicity terminates it using the Android Settings application. When StyleTap is killed, it is not necessarily notified of its termination and the Palm application is never sent an appStopEvent. This is why StyleTap tries to preserve as much information as possible when it is put into the background.

StyleTap can be terminated gracefully if you press the "Quit" button (as long as you don't disable it as in step 16)   or using the "Exit" menu option the StyleTap Launcher (as long as it's included in the assets subdirectory).

(18)   When your Android device is connected to your desktop PC using USB (and sharing is enabled), you should be able to view the shared portion of the the device's filesystem from your desktop. The root of this shared filesystem is also the the root of the filesystem that is accessible to your Palm application using VFS.   After the first time your application runs, it tries to create a subdirectory /Android/data/<your package name> in this shared filesystem.

If you select the "Export" menu option in the StyleTap Launcher,   copies all Palm databases (both .prc and .pdb files) to /Android/data/<your package name>/export folder so that they will be visible when connected to desktop. This allows databases to be copied/backed up to the desktop file system, where they can also then be processed by desktop applications. After processing, updated databases can be placed in /Android/data/<your package name>/import folder to be re-imported when the device is disconnected and StyleTap is started again.

Note to developers: The Export Databases function can also be called from your application via the StyleTap API. Contact StyleTap by email to obtain the latest header file.