



Foxit PDF Android SDK Tutorial – Rotation Demo

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Prerequisites

Developer Audience

This document is targeted towards Android developers using the SDK to add PDF functionality to Android applications. It assumes that the developer is familiar with C/C++ and Java.

Supported Environments

Platform	Operating System	Compiler
Android	Android 2.2 and newer.	android-ndk-r7 and newer.

Overview

Purpose

This document explains how Android rotation demo works. This demo is an example of implementing rotating PDF pages.

Setup

- 1) Download and install the Eclipse IDE (<http://www.eclipse.org/>), the Android SDK, ADT plugin for Eclipse, and the Android NDK (<http://developer.android.com/sdk/index.html>).
 - a) For Windows use, also download and install Cygwin (<http://www.cygwin.com/>). During Cygwin setup, make sure to include the "Devel -> make" package.
- 2) Download the Foxit embedded SDK Package.
- 3) Extract the provided fpdfemb_android_examples.zip to any directory.

- 4) Place the Foxit embedded SDK library and header files in
fpdfemb_android_examples/demos/bin and include directory.
- 5) Build the NDK layer.
- a) Open the Android.mk makefile in fpdfemb_android_examples/demos/demo(like
"demo_view")/jni/ in a text editor and fill in the Foxit library name in the area
designated for LOCAL_LDLIBS, dropping the lib prefix:

The demo is shipped as:

LOCAL_LDLIBS += \$(LOCAL_PATH)/../bin/# fill in library name here

To add downloaded **libfoxit.a** from step 1, fill in as:

LOCAL_LDLIBS := \$(LOCAL_PATH)/../bin/libfoxit.a

If the library provide is not named "libfoxit.a" please adjust accordingly.

- b) Open Cygwin (Windows), or a terminal (Linux based), and navigate to the
fpdfemb_android_examples/demos/demo(like "demo_view") directory. Run
"ndk-build -B" to build the NDK/JNI layer.

Example:

me@myStation /myProjectPath/ > ndk-build -B

This assumes that the ndk directory is part of the \$PATH environment variable. The command can also be qualified with the path to the NDK directory.

- c) The "ndk-build" script will automatically place the finished NDK layer in the form of a shared object (.so) in the fpdfemb_android_examples/demos/demo(like
"demo_view")/libs/armeabi/ directory.

- 6) Import the project into Eclipse through File->Import->Existing Project into
Workspace, and choose the directory where the demo was extracted.

- 7) Eclipse builds automatically.

- a) If the NDK/JNI code is changed, it will need to be rebuilt by following steps 5b
and 5c. After rebuilding the Eclipse project must be cleaned (Project -> Clean) to
allow Eclipse to rebuild your sample. Hairy and unwanted things can occur if this
is not done.

NOTE: If you encounter this error message in the "Console" tab in Eclipse,

**ERROR: Unable to open class file [full path to extracted demo files]\gen\com\[foxit
demo]\frontend\R.java: No such file or directory.**

Try regenerating the entire \gen folder by making a change to one of the files. For example,

- a) In Eclipse, click on /res/layout/main.xml
 - b) Make the following change and save it,
 Android:layout_height="fill_parent" to
 Android:layout_height="fill"
 - c) Now change it back to "fill_parent" and save it. This results in no change to main.xml but you should have generated a new /gen folder.
 - d) The demo project should build now.
 - e) If the project does build try Step 7a to clean the project resources.
- 8) Push the finished foxitSample apk to a device/emulator.
- a) Make sure you have a device/emulator ready either by firing off an Android Virtual Device or having an Android phone/tablet plugged in with Settings->Applications->Development->USB Debugging enabled.
 - b) In Eclipse, choose Run->Run to push the foxitSample onto the device. The sample will automatically launch.

Note: If you encounter this error message in the "Console" tab in Eclipse,
"Android requires .class compatibility set to 5.0. Please fix project properties"

Try fixing the project properties. Right click on the demo project, select Android Tools, and then select Fix Properties.

Demo Functionalities

PDF pages can be displayed when rotated in different directions (clockwise or counter-clockwise), and it can be displayed upside-down. To achieve these different rotations, change the rotate parameter when calling FPDF_RenderPage_Start function. The rotate parameter can be 0, 1, 2, or 3. Use 0 for no rotated, 1 for rotated (90 degrees) clockwise, 2 for upside-down, and 3 for rotated (90 degrees) counter-clockwise. Please refer to the following example showing how to rotate the page.

Initialize the environment

//Initialize the memory, initialize the library and unlock the SDK with given s/n.

```
EMBJavaSupport.FSMemInitFixedMemory (initMemSize) ;  
EMBJavaSupport.FSInitLibrary(0) ;  
EMBJavaSupport.FSUnlock ("XXXXXXXX",  
"XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX") ;
```

Initialize data

//Make sure the document handler and the page handler exist.

```
docHandle = EMBJavaSupport.FPDFDocLoad (fileAccessHandle,password) ;  
pageHandles [pageIndex]=  
EMBJavaSupport.FPDFPageLoad (docHandle,pageIndex) ;
```

Render the PDF page

// Just render the PDF page. The rotation flag is 0 at this moment.

```
private void RenderPage(int pageIndex, Bitmap bm, int startX, int startY, float  
xScale, float yScale, int rotate, int flags, Rectangle rect ,int pauseHandler)  
{  
    ...  
    this.RenderPage (pageIndex,bm,0,0,xScaleFactor,yScaleFactor,rotateFlag,0,n  
ull,0);  
    ...  
}
```

UI rotation option

// User will rotate the PDF page through UI. Below is the implementation.

```
switch (item.getItemId())  
{  
    case R.id.RotateLeft:  
        rotateFlag+=3;  
        rotateFlag = rotateFlag%4;  
        break;  
    case R.id.RotateRight:  
        rotateFlag++;  
        rotateFlag = rotateFlag%4;  
        break;  
}
```

Re-render the screen

// Re-render the screen with changed rotation flag. This demo provides 4 different rotation states each of which has 90° increment from the previous one. Note image height and width are switched when it is rotated to the 90° and 270° out of 360°

```
if (rotateFlag==0 || rotateFlag==2)
    imageView.setImageBitmap(myDoc.getPageBitmap(currentPage, width, height,
xScaleFactor, yScaleFactor, rotateFlag));
else
    imageView.setImageBitmap(myDoc.getPageBitmap(currentPage, height, width,
xScaleFactor, yScaleFactor, rotateFlag));
imageView.invalidate();
```