



**NAVIGATING BROADCASTING'S FUTURE**

# **PILOT FM Radio SDK**

Android Integration Guide

Document version 1.0.3

Applies to: SDK Version 1.0.3

This document is intended to be used in conjunction with the sample app provided.

**AUGUST 31, 2016**

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The PILOT FM RADIO SDK is a project of PILOT, an initiative of the National Association of Broadcasters ([NAB](#)).

PILOT, formerly NAB Labs, is a coalition of innovators, educators and advocates dedicated to advancing broadcast technology and cultivating new media opportunities. PILOT propels broadcast television and radio into the future. It provides a platform for innovation, an engine for incubation, a venue for testing new technologies and a forum for broadcaster education. Learn more at [www.nabpilot.org](http://www.nabpilot.org)

## INTRODUCTION

This document explains integration of the PILOT FM Radio SDK into an Android application. It describes how to integrate the SDK into Android Studio and how to use it.

### ZIP DIRECTORY STRUCTURE

#### **/Documentation**

- PILOT\_SDK\_IntegrationGuide.docx
- javadocs/
  - The auto-generated code documents. Open the index.html file to view the full code documentation

#### **/NAB\_Android\_SDK**

This folder contains the sample app project which contains the SDK module. The sample app provides examples of the SDK features. This code can be reviewed to understand the SDK and can easily be re-used in other projects. The code is commented with implementation details and helpful notes.

The SDK is already linked in the project, so the sample app will compile and run with no changes needed.

## REQUIREMENTS AND NOTES

- The SDK has a base Android SDK of 2.3.3 (10) and a deployment target of 5.1 (22)
- The Sample App supports various screen sizes
- The SDK needs the following permissions: INTERNET, MODIFY\_AUDIO\_SETTINGS, ACCESS\_NETWORK\_STATE, ACCESS\_COARSE\_LOCATION or ACCESS\_FINE\_LOCATION, and READ\_PHONE\_STATE.

## INTEGRATION INTO ANDROID STUDIO

The SDK is integrated in the form of an AAR file.

In order to add the SDK to your project, perform the following steps:

1. Unzip the SDK package and take note of the location.
2. In Android Studio, Go to File > New > New Module.
3. In the More Modules section, select Import .JAR or .AAR package.
4. Browse and find the nab\_sdk-release.aar file found in the nab\_sdk-release folder. This is part of the package you unzipped in step 1.
5. Select “Finish” to create the module.
6. Right click the module that you want to use the SDK with and select Open Module Settings.
7. Go to the Dependencies tab.
8. Select the “+” button and choose Module dependency.
9. Select the module that you created in step 5.

## USING THE PILOT FM RADIO SDK

### INITIALIZING THE NABFMRADIO

The NABFMRadio object is how you interact with the Android FM tuner.

The radio is easily initialized with the following method:

```
//initialize the NABFMRadio
sRadio = new NABFMRadio();
sRadio.initialize(this, getString(R.string.api_key), getString(R.string
    .auth_url), this);
```

The initialize call needs a Context, API key, authentication URL, and INABEventListener. The listener will be informed of various events such as powering on and signal strength changes. The initialize call will also authenticate your API key using the authentication URL. The authentication URL is provided on the PILOT SDK website. The onAuthorizationComplete listener method will inform you of the completion of authentication. If the authorization code is NABFMRadio.AUTHRESPONSE.SUCCESS then you are ready to use the radio as long as the device is supported (NABFMRadio.isDeviceSupported()). You can also use NABFMRadio.isAuthenticated() to determine if your application is authorized. Sometimes network issues occur which may give a non-successful authorization code, but still authorize your application.

The radio will need to be powered on before you are able to use the various FM tuner features.

```
sRadio.powerOnAsync(87700000, NABFMRadio.REGION.NORTH_AMERICA);
```

You can power on with any of the available regions and start with any frequency of your choosing. The listener will notify you when the radio has finished powering on (onRadioPoweredOn).

Your radio should now be playing the frequency specified and you can use the other features of the NABFMRadio like tuning to different frequencies, toggling the speaker, and getting RDS (Radio Data System) information.

### MAINTAINING THE NABFMRADIO

Any activities that interact with the NABFMRadio should include calls to the onResume and onPause functions of the radio in their respective places in the activity's lifecycle methods as seen in the sample application. The primary activity that the NABFMRadio is initialized in should also include the onStart and onStop functions of the radio in the activity's lifecycle. Calling these in additional activities won't have a negative impact in case there are multiple activities that initialize the radio.

## PILOT FM RADIO SDK

The `onError` method of the `INABEventListener` should be implemented with a minimum of what is seen below.

```
@Override
public void onError(int code, String message) {
    Dialog dialog = GoogleApiAvailability.getInstance().getErrorDialog(this, code, 1);
    dialog.show();
}
```

This allows for proper error handling of location errors by Google.

### SAMPLE APP

You can find the code above and more by taking a look at the Sample App source to see examples of using the `NABFMRadio`. Here's a list of the examples:

- Powering the radio on and off
- Toggling the radio mute state
- Setting a manual frequency
- Stepping up and down in frequency
- Seeking up and down in frequency
- Toggling the speaker state
- Getting the radio RDS information
- Getting the headset status

### DEVICE SUPPORT LIST

Some devices do not support the PILOT FM Radio SDK. To see which devices are supported, see the PILOT SDK website (<http://fmradiosdk.nabpilot.org>) for a full device support list.

### DEVELOPER SUPPORT

For help or support, head to the support section of the PILOT SDK website (<http://fmradiosdk.nabpilot.org>). Please preface your subject line with "Android FM Radio:" to ensure that the proper team is able to support you.

PILOT will be launching a for-fee tech support program to help developers incorporate the PILOT FM Radio into their apps. Additional details on this program will be posted on the SDK web site.