

# Adding the MobileFirst Platform Foundation SDK to Android Applications

## Overview

The MobileFirst Platform Foundation SDK provides a set of API methods enabling a developer to implement various MobileFirst features, such as: authentication and security mechanisms, notifications, resource requests, collecting analytics data and more.

For a complete list of MobileFirst SDK abilities visit the user documentation [TODO: missing link](#)

In this tutorial you will learn how to add the MobileFirst Native SDK using CocoaPods to either a new or existing Android application. You will also learn how to configure the MobileFirst Server to recognize the application, as well as find information about the MobileFirst configuration files that are added to the project.

**Pre-requisites:** Android Studio and MobileFirst CLI installed on the developer workstation.

Make sure you have read through the Setting up your development environment ([../../setting-up-your-development-environment](#)) tutorials.

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## Manually Adding the MobileFirst Native SDK

Follow the below instructions to manually add the MobileFirst Native SDK to either a new or existing Android Studio project.

1. Create an Android project or use an existing one.
2. Open **Terminal** and navigate to the root of the Android Studio project.
3. Run the command:

```
mfpdev app register
```

The `mfpdev app register` CLI command first connects to the MobileFirst Server and registers the application, followed by generating the `mfpclient.plist` file at the root of the Android Studio project.

The application registration can also be done from the MobileFirst Operations Console:

1. Open your browser of choice and load the MobileFirst Operations Console using the address `http://localhost:10080/mfpconsole/`. You can also open the console from **Terminal** using the CLI command `mfpdev server console`.
2. Click on the "Create new" button next to "Applications" to create a new application. Follow the on-screen instructions.
3. After successfully registering your application you can optionally download a "skeleton" Android Studio project pre-bundled with the MobileFirst Native SDK.

4. Run the command:

```
mfpdev app pull
```

The `mfpdev app pull` CLI command first creates a **mobilefirst** folder at the root of the Android Studio project and then contacts the MobileFirst Server to download into said folder the `application-descriptor.json` file.

These files are further explained in the Generated MobileFirst Native SDK artifacts section below.

**Tip:** Learn more about the various CLI commands in the Introduction to MobileFirst CLI tutorial [TODO: missing link](#)

5. In **Project > Gradle scripts**, select **build.gradle (Module: app)**.
6. Add the following lines below `apply plugin: 'com.android.application'`:

```
repositories{  
    jcenter()  
}
```

7. Add the following inside `android`:

```
packagingOptions {  
    pickFirst 'META-INF/ASL2.0'  
    pickFirst 'META-INF/LICENSE'  
    pickFirst 'META-INF/NOTICE'  
}
```

8. Add the following lines inside `dependencies`:

```
compile group: 'com.ibm.mobile.foundation',  
        name: 'ibmmobilefirstplatformfoundation',  
        version: '8.0.0.0',  
        ext: 'aar',  
        transitive: true
```

9. Add the following permissions to the `AndroidManifest.xml` file:

```
<uses-permission android:name=android.permission.INTERNET/>
<uses-permission android:name="android.permission.ACCESS_WIFI_STATE"/>
<uses-permission android:name="android.permission.GET_TASKS"/>
```

10. Add the MobileFirst UI activity:

```
<activity android:name="com.worklight.wlclient.ui.UIActivity" />
```

Now that the MobileFirst Native SDK was added to the Android Studio project, the final step to perform is to ensure that the MobileFirst Server will recognize any future requests arriving to it from the application.

## Generated MobileFirst Native SDK artifacts

Two MobileFirst-related artifacts are available in the Android Studio project after it has been integrated with the MobileFirst Native SDK: the `mfpclient.properties` and the `application-descriptor.json` file.

### `mfpclient.properties`

Located at the `./app/src/main/assets/` folder of the project, this file contains server configuration properties and is user-editable:

- `protocol` – The communication protocol to MobileFirst Server. Either HTTP or HTTPS.
- `host` – The hostname of the MobileFirst Server instance.
- `port` – The port of the MobileFirst Server instance.
- `wlServerContext` – The context root path of the application on the MobileFirst Server instance.
- `languagePreference` - Sets the default language for client sdk system messages

### `application-descriptor.json`

Located in the **<android-studio-project-root-directory>/mobilefirst** folder, this file contains application configuration settings such as its `bundleIdversion` and is user-editable.

If edited, be sure to update the MobileFirst Server by running the CLI command: `mfpdev app push`. The file can also be updated by pulling from the server its latest variation by running the CLI command: `mfpdev app pull`.

The file can be edited via the MobileFirst Operations Console.

```
{
  "applicationKey": {
    "packageName": "com.samplePackage",
    "version": "1.0",
    "clientPlatform": "android"
  }
  ...
  ...
  ...
}
```

## Tutorials to follow next

Now that the application is integrated with the MobileFirst Native SDK you can continue reading tutorials for Native Android development ([../../android-tutorials/](#)) to learn more about authentication and security, server-side development, notifications, and more.