

# Android - Implementing Cordova plug-ins

## Overview

In some cases, developers of a MobileFirst application might have to use a specific third-party native library or a device function that is not yet available in Apache Cordova.

With Apache Cordova, developers can create an Apache Cordova plug-in, which means that they create custom native code blocks and call these code blocks in their applications by using JavaScript.

**Note:** In Cordova-based applications, developers must check for the `deviceready` event before they use the Cordova API set. In a MobileFirst application, however, this check is done internally.

Instead of implementing this check, you can place implementation code in the `onCommonInit()` function in `common\js\main.js`.

This tutorial demonstrates how to create and integrate a simple Apache Cordova plug-in for Android, in the following topics:

- Creating a plug-in
- Declaring a plug-in
- Implementing `cordova.exec()` in JavaScript
- Implementing the Java code of a Cordova plug-in
- Sample application

## Creating a plug-in

1. Declare the plug-in in the `config.xml` file.
2. Use the `cordova.exec()` API in the JavaScript code.
3. Create the plug-in class that will run natively in Android.

The plug-in performs the required action and calls a JavaScript callback method that is specified during the call to `cordova.exec()`.



## Declaring a plug-in

You must declare the plug-in in the project, so that Cordova can detect it.

To declare the plug-in, add a reference to the `config.xml` file, located in the `native\res\xml` folder in the Android environment.

```
1 <feature name="sayHelloPlugin">
2   <param name="android-package" value="sayHelloPlugin" />
3 </feature>
```

## Implementing cordova.exec() in JavaScript

From the JavaScript code of the application, use the `cordova.exec()` method to call the Cordova plug-in:

```
1 function sayHello() {
2   var name = $("#NameInput").val();
3   cordova.exec(sayHelloSuccess, sayHelloFailure, "SayHelloPlugin", "sayHello", [name]);
4 }
```

sayHelloSuccess - Success callback

sayHelloFailure - Failure callback

SayHelloPlugin - Plug-in name as declared in `config.xml`

sayHello - Action name

[name] - Parameters array

The plug-in calls the success and failure callbacks.

```
1 function sayHelloSuccess(data){
2   WL.SimpleDialog.show(
3     "Response from plug-in", data,
4     [{text: "OK", handler: function() {WL.Logger.debug("Ok button pressed");}}]
5   );
6 }
7
8 function sayHelloFailure(data){
9   WL.SimpleDialog.show(
10    "Response from plug-in", data,
11    [{text: "OK", handler: function() {WL.Logger.debug("Ok button pressed");}}]
12  );
13 }
```

## Implementing the Java code of a Cordova plug-in

After you have declared the plug-in and the JavaScript implementation is ready, you can implement the Cordova plug-in.

1. Add a new Java class file.

2. Extend the `org.apache.cordova.CordovaPlugin` class and add the required import statements.

```
1 | public class SayHelloPlugin extends CordovaPlugin {
```

3. Implement an `execute` method.

- The arguments contain information that is required by a plug-in, such as action, arguments array, and callback context.

```
1 | public boolean execute(String action, JSONArray args, CallbackContext callbackContext) {
```



4. If the supplied action is `sayHello`, retrieve the first argument from the `args` array, prepare a `responseText` string and, by using the `callbackContext` argument, call the `success` callback with this `responseText` string as the argument.

```
1 | if (action.equals("sayHello")) {  
2 |     try {  
3 |         String responseText = "Hello " + args.getString(0);  
4 |         callbackContext.success(responseText);  
5 |     } catch (JSONException e){  
6 |         callbackContext.error("Failed to parse parameters");  
7 |     }  
8 |     return true;  
9 | }
```

5. Returning `false` means that the action that is supplied from JavaScript was not recognized.

```
1 | return false;  
2 | }
```

## Sample application

Click to download (<https://github.com/MobileFirst-Platform-Developer-Center/ApacheCordovaPlugins>) the MobileFirst project.

