

# 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. In this tutorial, a simple Apache Cordova plug-in creation and integration for Android will be demonstrated. **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, implementation code can be placed in the `onCommonInit()` function in `commonjsmain.js`.

The below code blocks are based on the sample application, provided at the bottom of this tutorial.

## Plug-in creation overview:

- Declare the plug-in in the `config.xml` file
- Use the `cordova.exec()` API in the JavaScript code
- 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

The plug-in needs to be declared 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 `nativeresxml` folder in the Android environment.

```

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

## Implementing cordova.exec() in JavaScript

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

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

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.

```
function sayHelloSuccess(data){
    WL.SimpleDialog.show(
        "Response from plug-in", data,
        [{text: "OK", handler: function() {WL.Logger.debug("Ok button pressed");}}]
    );
}

function sayHelloFailure(data){
    WL.SimpleDialog.show(
        "Response from plug-in", data,
        [{text: "OK", handler: function() {WL.Logger.debug("Ok button pressed");}}]
    );
}
```

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

After the plug-in is declared, and the JavaScript implementation is ready, the Cordova plug-in can be implemented.

### Step 1

- Add a new Java class file
- Extend the `org.apache.cordova.CordovaPlugin` class and add the required `import` statements

```
public class SayHelloPlugin extends CordovaPlugin {
```

### Step 2

Implement an `execute` method.

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

```
public boolean execute(String action, JSONArray args, CallbackContext callbackContext)
throws JSONException {
```

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

```
if (action.equals("sayHello")){  
    try {  
        String responseText = "Hello " + args.getString(0);  
        callbackContext.success(responseText);  
    } catch (JSONException e){  
        callbackContext.error("Failed to parse parameters");  
    }  
    return true;  
}
```

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

```
    return false;  
}
```

## Sample application

Click to download

(<http://public.dhe.ibm.com/software/products/en/MobileFirstPlatform/docs/v630/ApacheCordovaPluginsProject.zip>)  
the Studio project.

