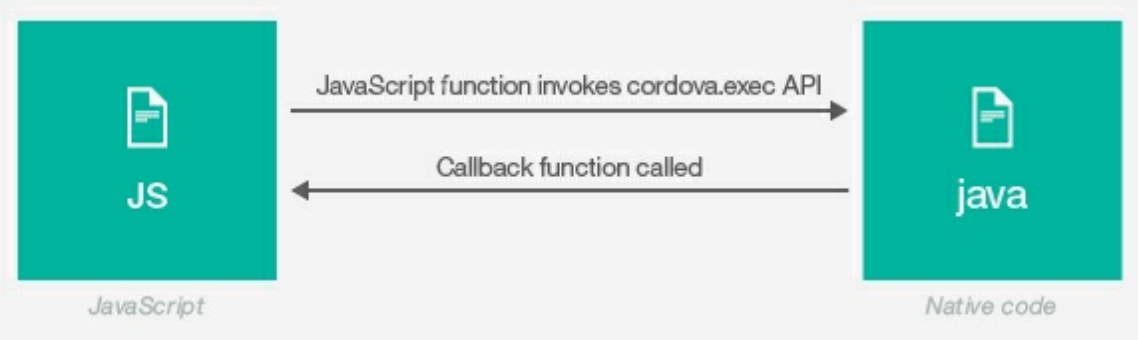
Android - Implementing Cordova plug-ins

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 `wlCommonInit()` 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.