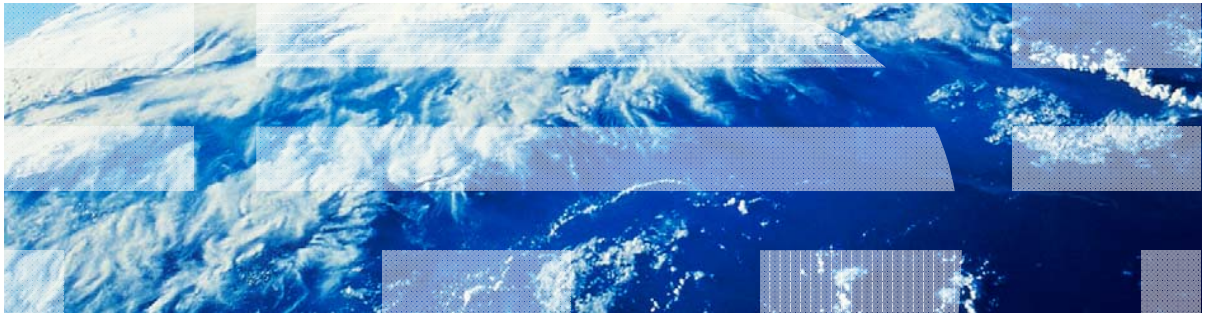


IBM Worklight V6.0.0 Getting Started

**Android – Adding native functionality to hybrid application
with Apache Cordova plugin**



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Agenda

- Apache Cordova plug-in overview
- Implementing the plug-in by using Java code
- Calling the plug-in from JavaScript

Apache Cordova plug-in overview

- Occasionally within an IBM Worklight® application, developers must use a specific third-party native library or a device function not yet available in Apache Cordova.
- With Apache Cordova, developers can create custom native code blocks and invoke them from JavaScript™.
- This technique is called “using an Apache Cordova plug-in”.
- In this module, you see how to create a simple Android Apache Cordova plug-in and use it in your code.
- More samples can be found in the Apache Cordova documentation at <https://github.com/phonegap/phonegap-plugins>.

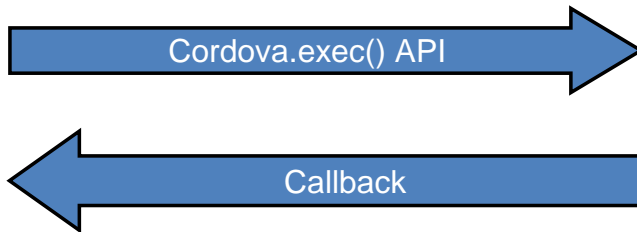
Apache Cordova plug-in overview

- Creating and using an Android Apache Cordova plug-in consists of three steps:
 - Create plug-in class, which would be run natively in Android
 - Declare your plug-in in **config.xml** file
 - Use **cordova.exec()** API in JavaScript
- The plug-in performs the required action and calls a JavaScript callback method that is specified during **cordova.exec()** invocation.

Your JavaScript
function



Your JavaScript
callback




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Implementing the plug-in by using Java code

- Add your plug-in definition to the **config.xml** file in the **res/xml** folder of your Android project.
 - Add the **<plugins>** tag, if it does not exist.
 - Add a reference to your plug-in inside the **<plugins>** tag in the **config.xml** file under a **<!--user -->** section

```
<plugin name="HelloWorldPlugin" value="com.AndroidApacheCordovaPlugin.HelloWorldPlugin"/>
```



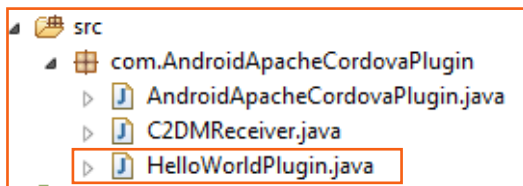
The plug-in
name, referenced
from JavaScript



The name of
an implementation
class

Implementing the plug-in by using Java code

- Start by creating a Java™ class for a plug-in. Call it **HelloWorldPlugin.java**.



- Extend the **org.apache.cordova.api.CordovaPlugin** class and add required imports.

```
public class HelloWorldPlugin extends CordovaPlugin {
```



Implementing the plug-in by using Java code

- Implement an **execute** method.

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

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

    return false;
}
```



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

Implementing the plug-in by using Java code

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```




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.

Implementing the plug-in by using Java code

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```



Returning **false** means that the action supplied from JavaScript was not recognized.

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Calling a plug-in from JavaScript

- Now you are ready to call the plug-in from JavaScript:

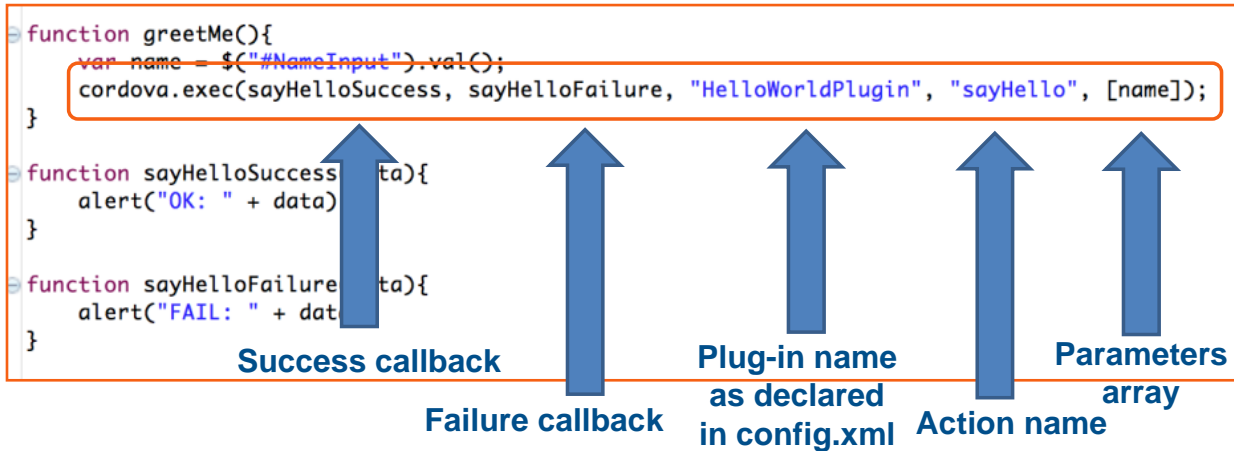
```
function greetMe(){  
    var name = $("#NameInput").val();  
    cordova.exec(sayHelloSuccess, sayHelloFailure, "HelloWorldPlugin", "sayHello", [name]);  
}  
  
function sayHelloSuccess(data){  
    alert("OK: " + data);  
}  
  
function sayHelloFailure(data){  
    alert("FAIL: " + data);  
}
```



Cordova.exec() API is used to call the plug-in.

Calling a plug-in from JavaScript


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Calling a plug-in from JavaScript

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}  
  
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    alert("FAIL: " + data);  
}
```



Success and failure callbacks is invoked by a plug-in

Calling the plug-in from JavaScript

- The sample for this training module can be found in the Getting Started page of the IBM Worklight documentation website at <http://www.ibm.com/mobile-docs>



Check yourself questions

- In order for the plug-in to be recognized in an application JavaScript, it must be added to:
 - config.xml file.
 - Worklight.plist file.
 - Plugins.plist file.
 - Plug-in is automatically recognized by JavaScript without adding it to any of the files.
- When can the Cordova plug-ins be used?
 - When developers want to implement their application in the native code, because they are not familiar with JavaScript.
 - When developers want the application to look more like a native application.
 - When developers want to gain access to the OS APIs that are not accessible within the web container.
 - When developers want to retrieve data from a remote server.
- What are the components of a Cordova plug-in?
 - Native class that implements the required functionality. Once it is declared in config.xml file, it can be called from application's JavaScript.
 - A native class that implements the required functionality and a JavaScript wrapper for it. The wrapper functions can be called from JavaScript.
 - A native class that implements the required functionality, a JavaScript wrapper for it and a declaration in the application-descriptor.xml file.
 - A JavaScript wrapper only. The native classes are already provided by IBM Worklight.

Check yourself questions

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