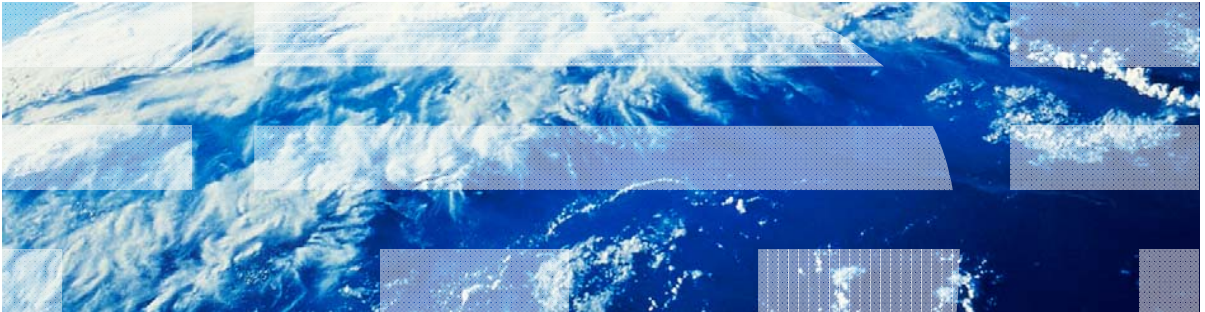


IBM Worklight V5.0.6 Getting Started

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



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Agenda

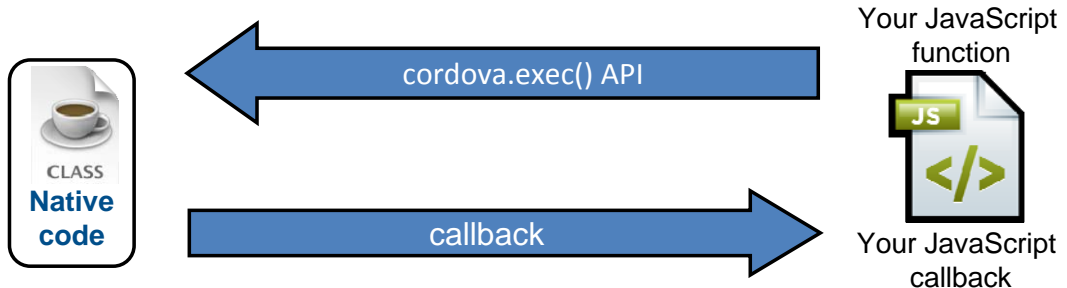
- Apache Cordova plug-in overview
- Implementing the plug-in by using Java™ code
- Adding the plug-in to DOM
- Invoking the plug-in from JavaScript™

Apache Cordova plug-in overview

- Occasionally within a Worklight® application, developers have to use a specific third-party native library or a device function not yet available in Apache Cordova.
- Apache [Cordova allows](#) developers to create custom native code blocks and to invoke them from JavaScript.
- This technique is called 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 iOS Apache Cordova plug-in consists of three steps
 - Create plug-in class, which would be run natively in iOS
 - Declare your plug-in in **config.xml** file
 - Use **cordova.exec()** API in JavaScript
- Plug-in performs the required action and calls a JavaScript callback method that is specified during **cordova.exec()** invocation



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Implementing an Objective-C Code plug-in

- Add your plug-in definition to the **config.xml** file under **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.

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



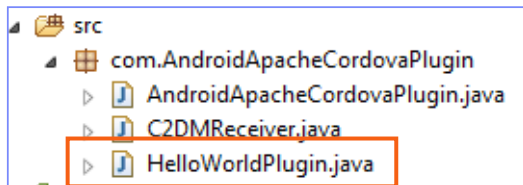
The name plug-in
is referenced
from JavaScript



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

- Implement an **execute** method.

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In case supplied action is sayHello – retrieve the first argument from arguments array and prepare a responseText string. Invoke success callback with it using callbackContext argument

Implementing the plug-in by using Java code

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        }
        return true;
    }
    return false;
}
```



Returning false means that
action supplied from JavaScript
was not recognized

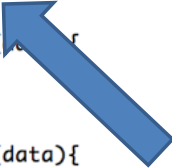
Agenda

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Invoking a plug-in from JavaScript

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

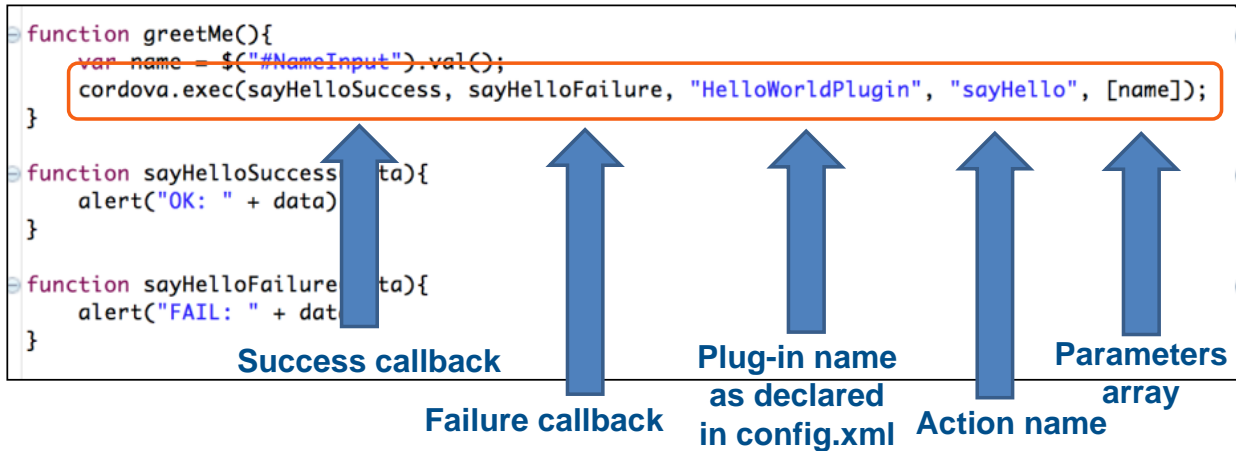
```
function greetMe(){  
    var name = $("#NameInput").val();  
    cordova.exec(sayHelloSuccess, sayHelloFailure, "HelloWorldPlugin", "sayHello", [name]);  
}  
  
function sayHelloSuccess(data) {  
    alert("OK: " + data);  
}  
  
function sayHelloFailure(data){  
    alert("FAIL: " + data);  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



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

Invoking a plug-in from JavaScript

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



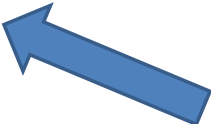
Invoking a plug-in from JavaScript

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    alert("OK: " + data);
}

function sayHelloFailure(data){
    alert("FAIL: " + data);
}
```



Success and failure callbacks is invoked by a plug-in

Invoking 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.

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