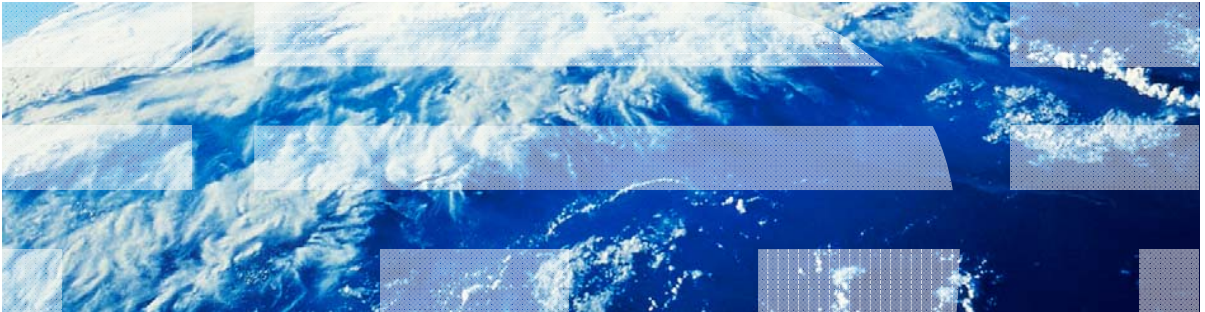


IBM Worklight V5.0.6 Getting Started

iOS – Adding native functionality to hybrid application with Apache Cordova plugin



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Agenda

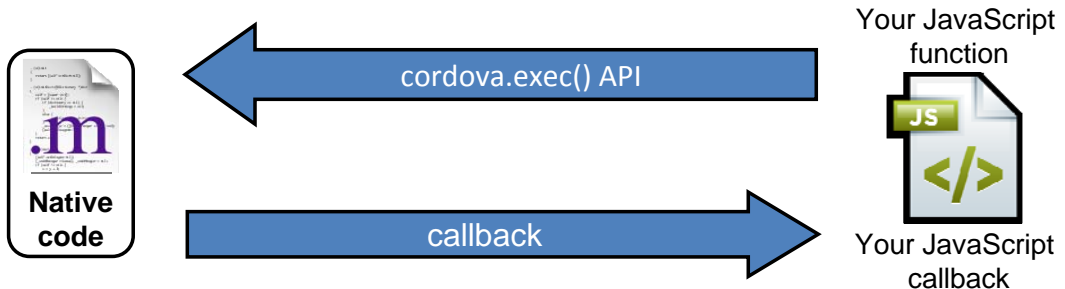
- Apache Cordova plug-in overview
- Implementing an Objective-C code plug-in
- Adding a plug-in to DOM
- Invoking a plug-in from JavaScript™

Apache Cordova plug-in overview

- Occasionally within a Worklight® application, developers need to use a specific third-party native library or a device function that is not yet available in Apache Cordova.
- Apache Cordova allows developers to create custom native code blocks and invoke them using JavaScript.
- This technique is called an Apache Cordova plug-in.
- This module demonstrates how to create a simple Apache Cordova plug-in and how to 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 will perform required action and call a JavaScript callback method specified during **cordova.exec()** invocation



Agenda

- Apache Cordova plug-in overview
- Implementing an Objective-C code plug-in
- Invoking plug-in from JavaScript


Implementing an Objective-C Code plug-in

- Add your plug-in definition to the **config.xml** file in your native iOS project.
 - Add the **<plugins>** tag, if it does not already exist.
 - Add a reference to your plug-in inside the **<plugins>** tag in the **config.xml** file.

```
<plugins>  
  <plugin name="HelloWorldPlugin" value="HelloWorldPlugin" />  
</plugins>
```



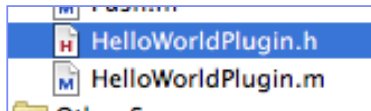
The name plug-in
will be referenced
by from JavaScript



The name of
an implementation
class

Implementing an Objective-C Code plug-in

- Start by creating an Objective-C class for a plug-in. Call it **HelloWorldPlugin**.
- Import the **Cordova/CDV.h** and inherit the **CDVPlugin** class.
- Declare the method signature.



```
#import <Foundation/Foundation.h>
#import <Cordova/CDV.h>

@interface HelloWorldPlugin : CDVPlugin

- (void)sayHello:(CDVInvokedUrlCommand*)command;

@end
```


Implementing an Objective-C Code plug-in

- Implement the method:

```
#import "HelloWorldPlugin.h"

@implementation HelloWorldPlugin

- (void)sayHello:(CDVInvokedUrlCommand*)command{

    NSString *responseString =
        [NSString stringWithFormat:@"Hello World, [command.arguments objectAtIndex:0]];

    CDVPluginResult *pluginResult =
        [CDVPluginResult resultWithStatus:CDVCommandStatus_OK messageAsString:responseString];

    [self.commandDelegate sendPluginResult:pluginResult callbackId:command.callbackId];
}

@end
```

The **command** argument contains references to parameters sent from JavaScript and callbacks

Implementing an Objective-C Code plug-in

- Implement the method:

```
#import "HelloWorldPlugin.h"

@implementation HelloWorldPlugin

- (void)sayHello:(CDVInvokedUrlCommand*)command{

    NSString *responseString =
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        [CDVPluginResult resultWithStatus:CDVCommandStatus_OK messageAsString:responseString];

    [self.commandDelegate sendPluginResult:pluginResult callbackId:command.callbackId];
}

@end
```

Use it to retrieve parameters sent from JavaScript

Implementing an Objective-C Code plug-in

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```
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    [self.commandDelegate sendPluginResult:pluginResult callbackId:command.callbackId];
}

@end
```



The **pluginResult** object is created with data retrieved from JavaScript. **CDVCommandStatus** parameter defines whether plug-in invocation was successful or not

Implementing an Objective-C Code plug-in

- Implement the method:

```
#import "HelloWorldPlugin.h"

@implementation HelloWorldPlugin

- (void)sayHello:(CDVInvokedUrlCommand*)command {

    NSString *responseString =
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    CDVPluginResult *pluginResult =
        [CDVPluginResult resultWithStatus:CDVCommandStatus_OK messageAsString:responseString];

    [self.commandDelegate sendPluginResult:pluginResult callbackId:command.callbackId];
}

@end
```

The **sendPluginResult** method is used to return a response back to JavaScript (invoke callback)



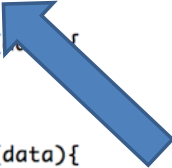
Agenda

- Apache Cordova plug-in overview
- Implementing an Objective-C code of a plug-in
- Invoking a plug-in from JavaScript

Invoking a plug-in from JavaScript

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

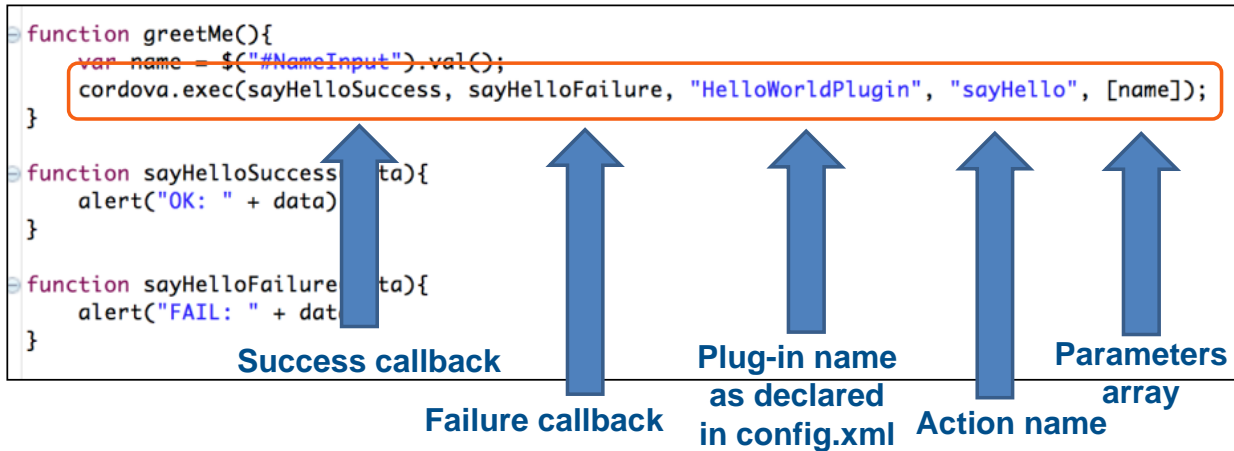
```
function greetMe(){  
    var name = $("#NameInput").val();  
    cordova.exec(sayHelloSuccess, sayHelloFailure, "HelloWorldPlugin", "sayHello", [name]);  
}  
  
function sayHelloSuccess(data) {  
    alert("OK: " + data);  
}  
  
function sayHelloFailure(data){  
    alert("FAIL: " + data);  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



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 will be invoked by a plug-in

Invoking a 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 to recognize a plug-in in a JavaScript application it should be added to:
 - config.xml file.
 - Worklight.plist file.
 - Plugins.plist file.
 - Plug-in will be automatically recognized by JavaScript without adding it to any of above files.
- When should Cordova plug-ins be used?
 - When a developer wants to implement his application in the native code because he is not familiar with JavaScript.
 - When a developer wants his application to look more like a native application.
 - When a developer wants to gain access to OS APIs which are not accessible within the web container.
 - When a developer needs to retrieve data from a remote server.
- What are the mandatory components of a Cordova plug-in?
 - Native class implementing the required functionality. Once it is declared in **config.xml** file it can be called from application's JavaScript.
 - Native class implementing the required functionality and a JavaScript wrapper for it. The wrapper's functions can be called from JavaScript.
 - Native class implementing the required functionality, JavaScript wrapper for it and declaration in application-descriptor.xml file.
 - JavaScript wrapper only. Native classes are already provided by IBM Worklight.

Check yourself questions

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