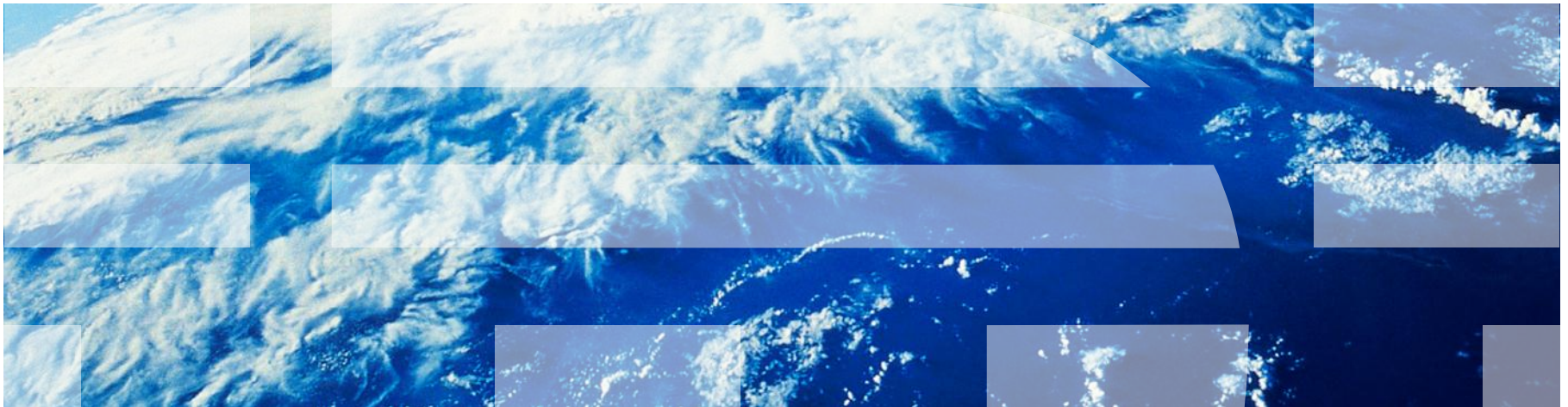


IBM Worklight Foundation V6.2.0 Getting Started

Windows Phone 8 – Adding native functionality to Hybrid application with Apache Cordova plug-in



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Agenda

- Apache Cordova plug-in overview
- Implementing the plug-in by using C# code
- Adding the plug-in to the DOM
- Invoking the plug-in from JavaScript code
- Configuring the Worklight Foundation project

Apache Cordova plug-in overview

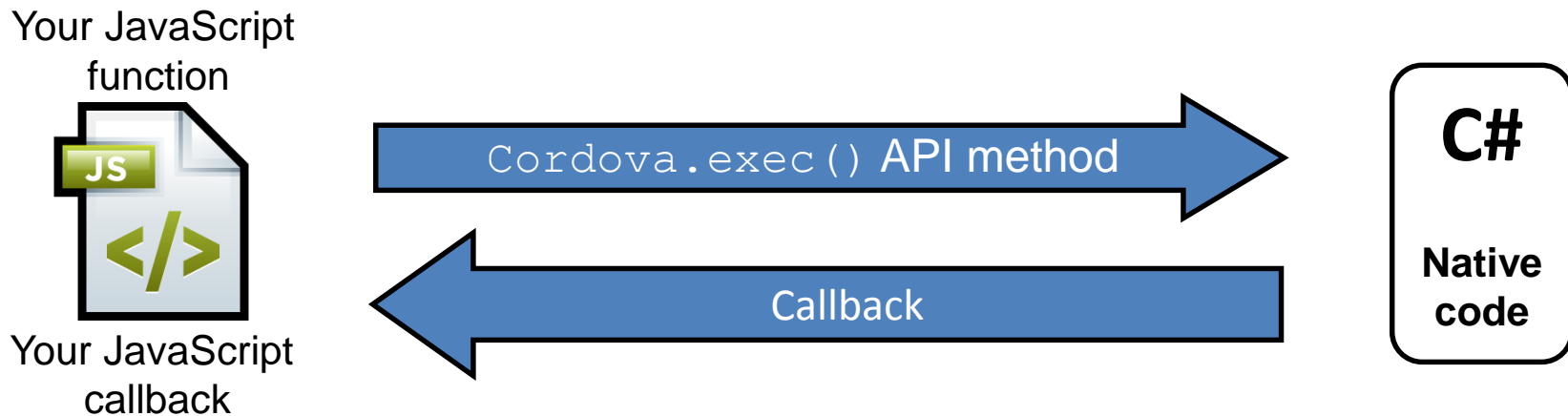
- Within an IBM Worklight® application, developers occasionally have to use a specific third-party native library or a device function that is not yet available in Apache Cordova.
- With Apache Cordova, developers can create an Apache Cordova plug-in, which means that they create custom native code blocks, and call these code blocks in their applications by using JavaScript™.
- In this module, you learn how to create a simple Windows Phone 8 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

- **Note:** Unlike Cordova-based applications, where developers are required to check for the `deviceready` event before using Cordova API set, in a Worklight application this check is done internally.
- Instead of implementing this check, you can place your implementation code in the `wlCommonInit()` function in `common\js\main.js`.

Apache Cordova plug-in overview

- An Apache Cordova plug-in consists of two parts:
 - A C# code that runs natively within the Windows Phone OS
 - A JavaScript wrapper
- When both parts are implemented, developers are able to call native code from JavaScript in a simple and familiar way.

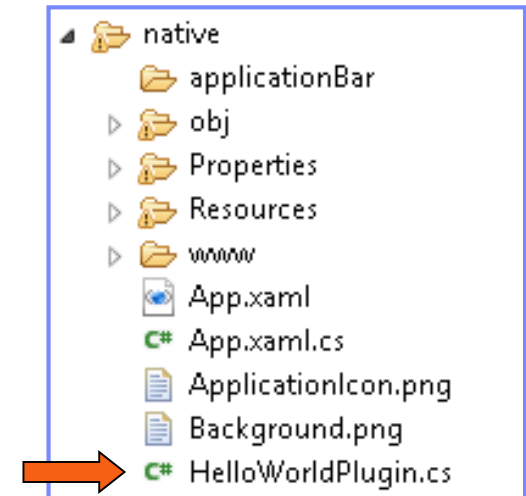


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- Apache Cordova plug-in overview
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Implementing the plug-in by using C# code

- Start by creating a C# class for the plug-in. Call it `HelloWorldPlugin.cs`.



- Add the new class to your project namespace, and add required imports.

```
using WPCordovaClassLib.Cordova;
using WPCordovaClassLib.Cordova.Commands;
using WPCordovaClassLib.Cordova.JSON;

namespace WindowsPhoneCordovaPlugin
{
    public class HelloWorldPlugin : BaseCommand
```


Implementing the plug-in by using C# code – continued

- Implement the `HelloWorldPlugin` class and the `sayHello` method.

```
namespace WindowsPhoneCordovaPlugin
{
    public class HelloWorldPlugin : BaseCommand
    {
        public void sayHello(string options)
        {
            string optVal = null;
            try {
                optVal = JsonSerializer.Deserialize<string[]>(options)[0];
            }
            catch (Exception) {
                DispatchCommandResult(new PluginResult(PluginResult.Status.ERROR, "HelloWorldPlugin signaled an error"));
            }

            if (optVal == null)
            {
                DispatchCommandResult(new PluginResult(PluginResult.Status.ERROR, "Got null value as input"));
            }
            else
            {
                DispatchCommandResult(new PluginResult(PluginResult.Status.OK, "{result: Hello " + optVal + "}"));
            }
        }
    }
}
```

Implementing the plug-in by using C# code – continued

- Implement the `HelloWorldPlugin` class and the `sayHello` method.

```
namespace WindowsPhoneCordovaPlugin
{
    public class HelloWorldPlugin : BaseCommand
    {
        public void sayHello(string options)
        {
            string optVal = null;
            try {
                optVal = JsonSerializer.Deserialize<string[]>(options)[0];
            }
            catch (Exception) {
                DispatchCommandResult(new PluginResult(PluginResult.Status.ERROR, "HelloWorldPlugin signaled an error"));
            }

            if (optVal == null)
            {
                DispatchCommandResult(new PluginResult(PluginResult.Status.ERROR, "Got null value as input"));
            }
            else
            {
                DispatchCommandResult(new PluginResult(PluginResult.Status.OK, "{result: Hello " + optVal + "}"));
            }
        }
    }
}
```

The JavaScript wrapper calls the `sayHello` method and passes a single parameter. It returns a string back to JavaScript.

Implementing the plug-in by using C# code – continued

- Implement the HelloWorldPlugin class and the sayHello method.

```
namespace WindowsPhoneCordovaPlugin
{
    public class HelloWorldPlugin : BaseCommand
    {
        public void sayHello(string options)
        {
            string optVal = null;
            try {
                optVal = JsonHelper.Deserialize<string[]>(options);
            }
            catch (Exception) {
                DispatchCommandResult(new PluginResult(PluginResult.Status.ERROR, "HelloWorldPlugin signaled an error"));
            }

            if (optVal == null)
            {
                DispatchCommandResult(new PluginResult(PluginResult.Status.ERROR, "Got null value as input"));
            }
            else
            {
                DispatchCommandResult(new PluginResult(PluginResult.Status.OK, "{result: Hello " + optVal + "}"));
            }
        }
    }
}
```

The DispatchCommandResult returns the result back to JavaScript, whether it is success or failure.

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Adding the plug-in to the DOM

- The second step of the plug-in implementation is to declare the plug-in in the DOM, and then to create a wrapper for it.

```
function HelloWorldPlugin(){
}

HelloWorldPlugin.prototype.sayHello = function(onSayHelloSuccess, onSayHelloFailure, name){
    cordova.exec(onSayHelloSuccess,
                onSayHelloFailure,
                "WindowsPhoneCordovaPlugin.HelloWorldPlugin",
                "sayHello",
                [name]
    );
};

cordova.addConstructor(function() {
    if (!window.plugins) window.plugins = {};
    window.plugins.helloWorldPlugin = new HelloWorldPlugin();
});
```

* Note that in the `cordova.exec` command **the plugin class name must include its namespace.**

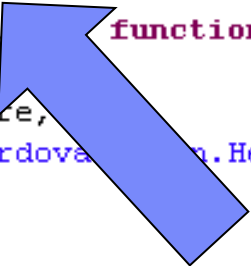
Adding the plug-in to the DOM – continued

- The second step of the plug-in implementation is to declare the plug-in in the DOM, and then to create a wrapper for it.

```
function HelloWorldPlugin(){
}

HelloWorldPlugin.prototype.sayHello = function (onSayHelloSuccess, onSayHelloFailure, name){
    cordova.exec (onSayHelloSuccess,
                  onSayHelloFailure,
                  "WindowsPhoneCordova", "HelloWorldPlugin",
                  "sayHello",
                  [name]
    );
};

cordova.addConstructor(function() {
    if (!window.plugins) window.plugins = {};
    window.plugins.helloWorldPlugin = new HelloWorldPlugin();
});
```



First, create an empty function that serves as a wrapper for the plug-in.

Adding the plug-in to the DOM – continued

- The second step of the plug-in implementation is to declare the plug-in in the DOM, and then to create a wrapper for it.

```
function HelloWorldPlugin(){
}

HelloWorldPlugin.prototype.sayHello = function(onSayHelloSuccess, onSayHelloFailure, name){
    cordova.exec(onSayHelloSuccess, onSayHelloFailure,
        "WindowsPhoneCordovaPlugin.HelloWorldPlugin",
        "sayHello",
        [name]
    );
};

cordova.addConstructor(function() {
    if (!window.plugins) window.plugins = {};
    window.plugins.helloWorldPlugin = new HelloWorldPlugin();
});
```

Create a **sayHello** function by using the **HelloWorldPlugin** prototype and the hardcoded plug-in class name and action. It invokes the plug-in by using `cordova.exec()`.

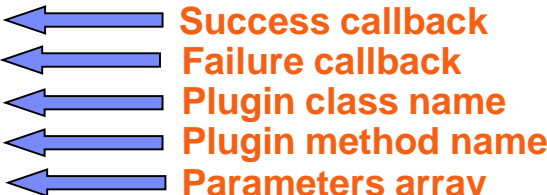
Adding the plug-in to the DOM – continued

- The second step of the plug-in implementation is to declare the plug-in in the DOM, and then to create a wrapper for it.

```
function HelloWorldPlugin(){
}

HelloWorldPlugin.prototype.sayHello = function (onSayHelloSuccess, onSayHelloFailure, name){
    cordova.exec (onSayHelloSuccess,
                  onSayHelloFailure,
                  "WindowsPhoneCordovaPlugin.HelloWorldPlugin",
                  "sayHello",
                  [name]
    );
};

cordova.addConstructor(function() {
    if (!window.plugins) window.plugins = {};
    window.plugins.helloWorldPlugin = new HelloWorldPlugin();
});
```



Adding the plug-in to the DOM – continued

- The second step of the plug-in implementation is to declare the plug-in in the DOM and then to create a wrapper for it.

```
function HelloWorldPlugin(){
}

HelloWorldPlugin.prototype.sayHello = function() {
    cordova.exec(onSayHelloSuccess,
                onSayHelloFailure,
                "WindowsPhoneCordova",
                "sayHello",
                [name]);
};

};
```

The final step is to add a `helloWorldPlugin` property to the DOM `window.plugins` object. You can now invoke your plug-in by using `window.plugins.helloWorldPlugin.sayHello()`.

```
cordova.addConstructor(function() {
    if (!window.plugins) window.plugins = {};
    window.plugins.helloWorldPlugin = new HelloWorldPlugin();
});
```


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Invoking the plug-in from JavaScript

- Now you are ready to invoke your plug-in from JavaScript.

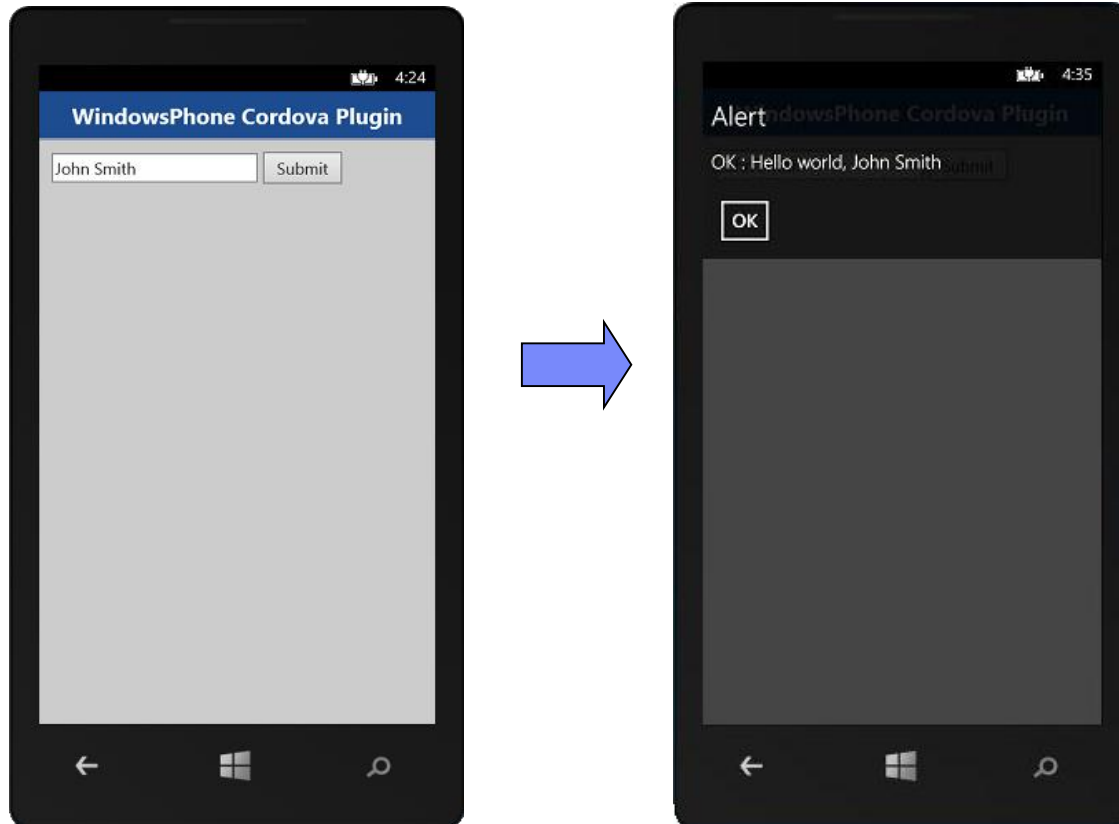
```
function greetMe(){  
    window.plugins.helloWorldPlugin.sayHello(sayHelloSuccess, sayHelloFailure, $("#NameInput").val());  
}  
  
function sayHelloSuccess(data){  
    alert("OK : " + data);  
}  
  
function sayHelloFailure(data){  
    alert("FAIL : " + data);  
}
```



Success and Failure callbacks

Invoking the plug-in from JavaScript – continued

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



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Configuring the Worklight Foundation project

- A few more steps are required so that the plug-in can work in the application:
 - The plug-in must be placed in the native folder.
 - The `config.xml` file that is located in the native folder must declare the plug-in under the `User` section:

```
<feature name="WindowsPhone8CordovaPlugin">  
  <param name="wp-package" value="HelloWorldPlugin" />  
</feature>
```

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