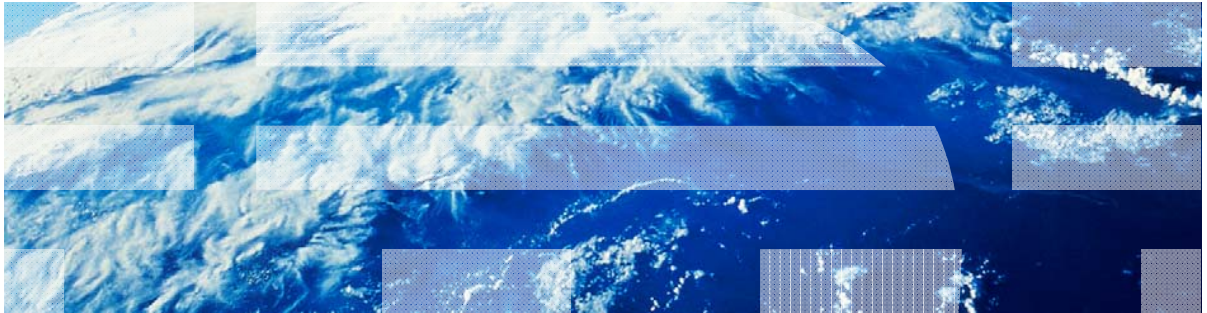


IBM Worklight V5.0.6 Getting Started

Windows Phone 8 – Adding native functionality to hybrid application with Apache Cordova plugin



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Agenda

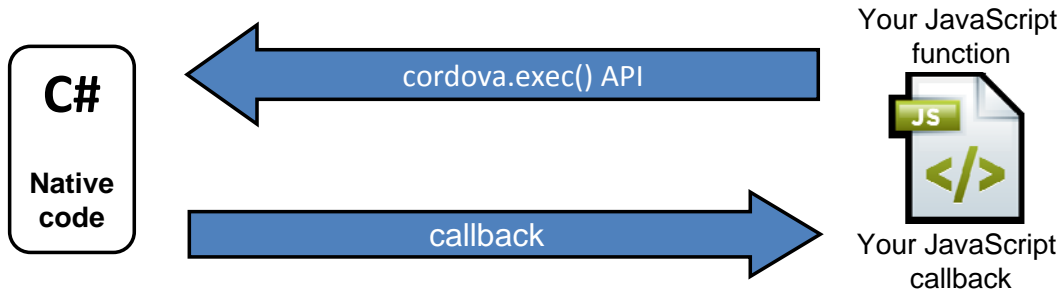
- Apache Cordova plug-in overview
- Implementing the plug-in using C# code
- Adding the plug-in to DOM
- Invoking the plug-in from JavaScript™

Apache Cordova plug-in overview

- Occasionally within a Worklight® application, developers need to use a specific third-party native library or a device function 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 Windows Phone 8 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

- 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 a native code from JavaScript in a simple and familiar way.

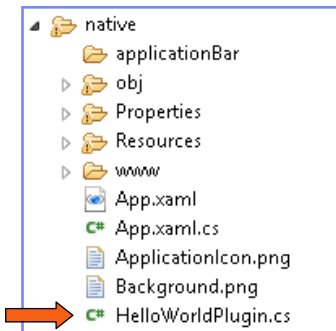


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Implementing the plug-in using C# code

- 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 using C# code

- 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 using C# code

- 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 JavaScript wrapper calls the **sayHello** method and pass a single parameter. It returns a string back to JavaScript.

Implementing the plug-in using C# code

- Implement the HelloWorldPlugin class and the sayHello method.

```
namespace WindowsPhoneCordovaPlugin
{
    public class HelloWorldPlugin : BaseCommand
    {
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            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 is responsible for returning the result back to JavaScript whether it is success or failure.

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Adding the plug-in to DOM

- The second step of the plug-in implementation is to declare it 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]
    );
};

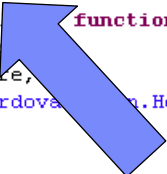
cordova.addConstructor(function() {
    if (!window.plugins) window.plugins = {};
    window.plugins.helloWorldPlugin = new HelloWorldPlugin();
});
```

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

Adding the plug-in to DOM

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

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

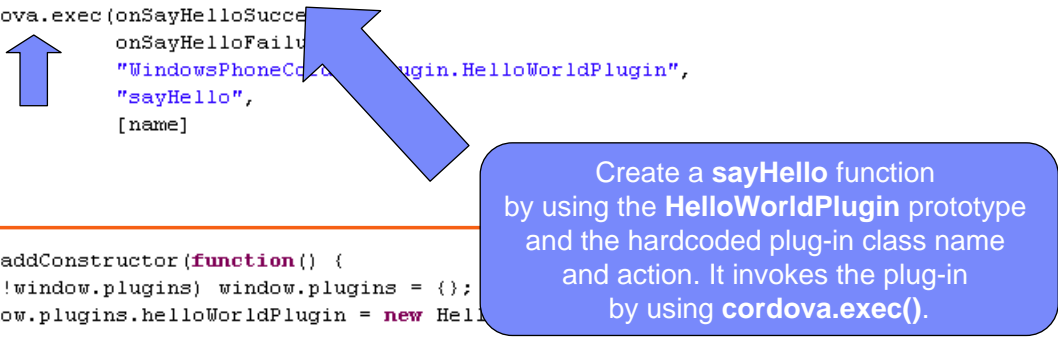
Adding the plug-in to DOM

- The second step of the plug-in implementation is to declare it 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 DOM

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

```
function HelloWorldPlugin(){
}

HelloWorldPlugin.prototype.sayHello = function(onSayHelloSuccess, onSayHelloFailure, name) {
    cordova.exec (onSayHelloSuccess,                               ← Success callback
                  onSayHelloFailure,                             ← Failure callback
                  "WindowsPhoneCordovaPlugin.HelloWorldPlugin", ← Plugin Class name
                  "sayHello",                                     ← Plugin method name
                  [name]                                         ← Parameters array
    );
};

};

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

Adding the plug-in to DOM

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

```
function HelloWorldPlugin(){  
}  
  
HelloWorldPlugin.prototype.sayHello = function()  
{  
    cordova.exec(onSayHelloSuccess,  
                onSayHelloFailure,  
                "WindowsPhoneCordovaPlugin",  
                "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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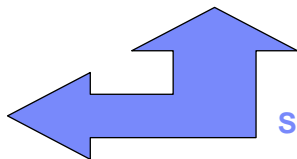
Invoking plug-in from JavaScript

- 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);  
}
```

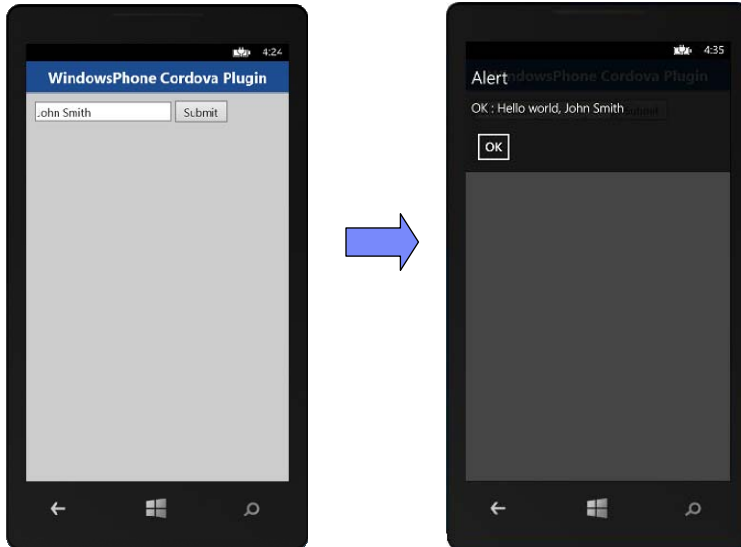
```
function sayHelloFailure(data){  
    alert("FAIL : " + data);  
}
```



Success and Failure callbacks

Invoking 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>



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