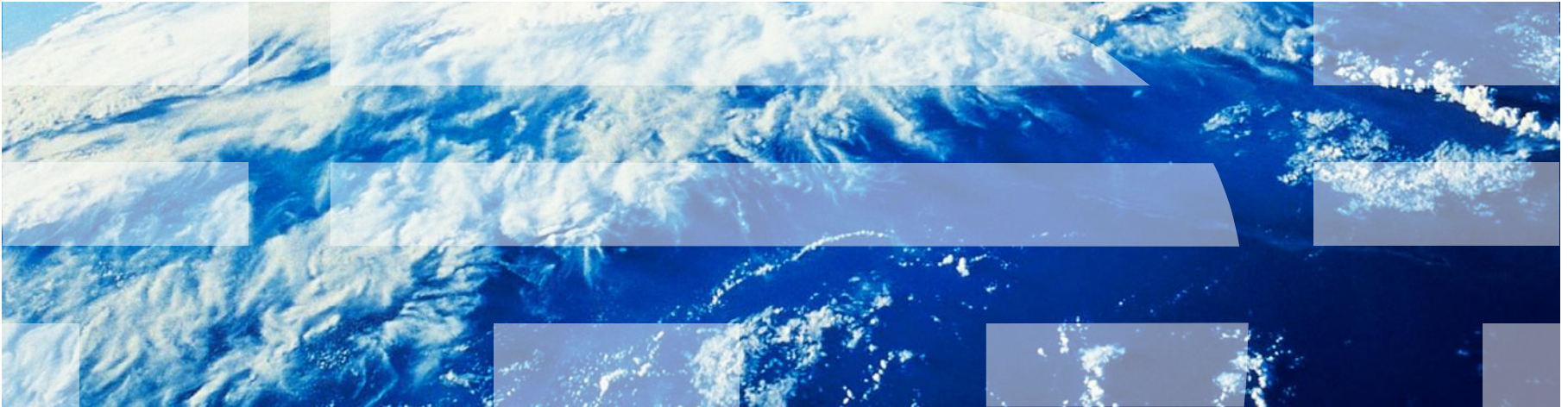


IBM Worklight Foundation V6.2.0 Getting Started

Integrating server-generated pages in hybrid applications



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Agenda

- Overview
- Java™ implementation
- JavaScript™ implementation
- Examining the result

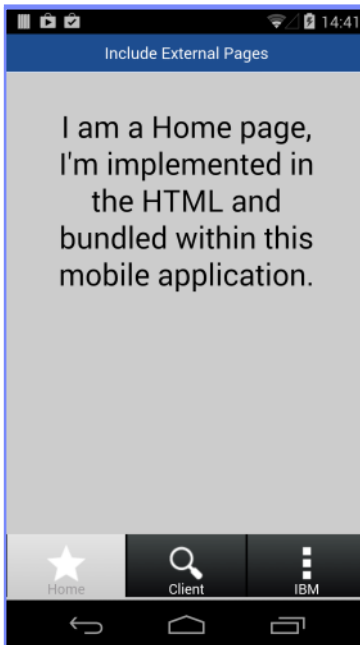
Overview

- Many enterprises today decide to develop their own customer or employee-facing mobile applications.
- Some of those companies already have mobile-facing websites (mobile web).
- An important decision must be made by companies:
 - Should all the mobile web features be implemented from scratch in the mobile application, which is great from a user experience perspective, but very time- and money-consuming?
 - Should the mobile application contain only new features with old ones still accessible by a mobile browser, which is easier to implement but not great in terms of user experience?

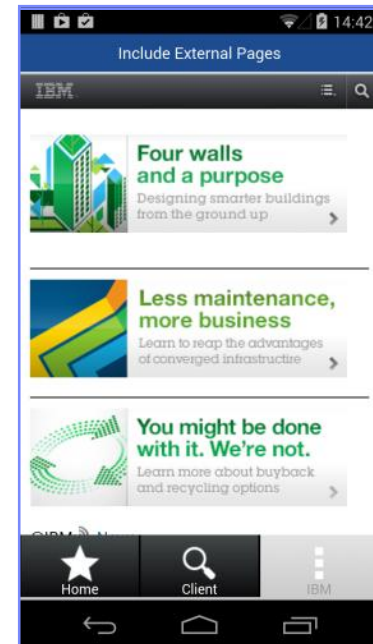
Overview

- The **WebViewOverlay** approach allows the re-use and integration of existing mobile websites within a mobile application.
- Navigation is smooth and seamless between components that are internal in the mobile application, and the external content on the external mobile website.

Web resources that are bundled inside the application



External web content



Overview

- In this module, you create a simple application with the Android environment with three tab items.
- The first two tabs contain internal content. The third tab shows an external IBM mobile website.



First and second tabs contain internal web resources



Third tab looks like another application page



But technically, it contains an extra WebView component on top of it

Overview

- **WebViewOverlay** is implemented by using the Apache Cordova plug-ins functionality.
- Developers can easily create their own protocol between internal web components and the **WebViewOverlay** control.
- You can use this module's sample project to understand the concepts of **WebViewOverlay**.
- Make sure that you are proficient with implementing Cordova plug-ins before proceeding.

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Java implementation

- First, in the application main class, declare a **webViewOverlay** object to display the external content. Use static references for simplicity.

```
public class IncludeExternalPages extends CordovaActivity  
implements WLInitWebFrameworkListener {
```

```
private static WebView webViewOverlay;  
public static Activity thisapp;
```

```
...
```

```
...
```

```
...
```

```
...
```

Java implementation – continued

- Create the object, set its layout properties, and add it as a view to the root element. It is invisible initially.

```

public void onInitWebFrameworkComplete (WLInitWebFrameworkResult result) {
    if (result.getStatusCode() == WLInitWebFrameworkResult.SUCCESS) {
        super.loadUrl (WL.getInstance().getMainHtmlFilePath());

        thisapp = this;
        WebViewClient webViewClient = new WebViewClient() {
            @Override
            public boolean shouldOverrideUrlLoading(WebView view, String url) {
                view.loadUrl(url);
                return true;
            }
        };

        webViewOverlay = new WebView(this);
        webViewOverlay.setVisibility(View.INVISIBLE);
        webViewOverlay.setWebViewClient(webViewClient);
        RelativeLayout.LayoutParams webViewOverlayLayoutParams = new
        RelativeLayout.LayoutParams(
            RelativeLayout.LayoutParams.MATCH_PARENT,
            RelativeLayout.LayoutParams.MATCH_PARENT);
        webViewOverlayLayoutParams.setMargins(0, 120, 0, 196);
        webViewOverlay.setLayoutParams(webViewOverlayLayoutParams);
        webViewOverlay.getSettings().setJavaScriptEnabled(true);
        ...
        ...
    }
}

```

Java implementation – continued

- Note the `setMargins` API. This API can be used to position your `webViewOverlay` component in the screen.

```
public void onInitWebFrameworkComplete (WLInitWebFrameworkResult result) {
    if (result.getStatusCode() == WLInitWebFrameworkResult.SUCCESS) {
        super.loadUrl (WL.getInstance().getMainHtmlFilePath());

        thisapp = this;
        WebViewClient webViewClient = new WebViewClient() {
            @Override
            public boolean shouldOverrideUrlLoading(WebView view, String url) {
                view.loadUrl(url);
                return true;
            }
        };
        webViewOverlay = new WebView(this);
        webViewOverlay.setVisibility(View.INVISIBLE);
        webViewOverlay.setWebViewClient(webViewClient);
        RelativeLayout.LayoutParams webViewOverlayLayoutParams = new
        RelativeLayout.LayoutParams (
            RelativeLayout.LayoutParams.MATCH_PARENT,
            RelativeLayout.LayoutParams.MATCH_PARENT);
        webViewOverlayLayoutParams.setMargins(0, 120, 0, 196);
        webViewOverlay.setLayoutParams(webViewOverlayLayoutParams);
        webViewOverlay.getSettings().setJavaScriptEnabled(true);
        ...
        ...
    }
}
```

Java implementation – continued

- **Note:** Android 4.4 introduces a new version of WebView that is based on Chromium and that affects the WebView margins. More information about this issue can be found here:

<http://developer.android.com/guide/webapps/migrating.html>

Java implementation – continued

- Next, you need to set up your content view.
- Create a **RelativeLayout** object that functions as a root layout.
- Remove the **root** instance from its original parent.
- Add **root** and **webViewOverlay** to **rootRelativeLayout**.
- Set the content view to **rootRelativeLayout**.

```
public void onInitWebFrameworkComplete(WLInitWebFrameworkResult result) {
```

```
...
```

```
webViewOverlay.getSettings().setJavaScriptEnabled(true);
```

```
RelativeLayout rootRelativeLayout = new RelativeLayout(this);
```

```
((FrameLayout) root.getParent()).removeAllViews();
```

```
rootRelativeLayout.addView(root);
```

```
rootRelativeLayout.addView(webViewOverlay);
```

```
setContentView(rootRelativeLayout);
```

```
...
```

Java implementation – continued

- Now, implement the Java code of the Cordova plug-in. Create a new class, `WebViewOverlayPlugin.java`:

```
public class WebViewOverlayPlugin extends CordovaPlugin {  
    private final String ACTION_OPEN_URL = "open";  
    private final String ACTION_CLOSE_WEBVIEWOVERLAY = "close";  
    ...  
}
```

Declare the actions that the plug-in supports.

Java implementation – continued

- Now, implement the Java code of the Cordova plug-in. Create a new class, `WebViewOverlayPlugin.java`:

```
public class WebViewOverlayPlugin extends CordovaPlugin {  
    ...  
    @Override  
    public boolean execute(String action, JSONArray args, CallbackContext callbackContext) {  
        if (action.equals(ACTION_OPEN_URL)) {  
            IncludeExternalPages.thisapp.runOnUiThread(new Runnable() {  
                public void run() {  
                    IncludeExternalPages.clearWebViewOverlayHistory();  
                    IncludeExternalPages.loadWebViewOverlay("http://m.ibm.com/");  
                    IncludeExternalPages.setWebViewOverlayVisibility(View.VISIBLE);  
                    IncludeExternalPages.requestWebViewOverlayFocus();  
                    IncludeExternalPages.clearWebViewOverlayHistory();  
                }  
            });  
            return true;  
        }  
    }  
}
```

If an “open” request was received from the web part of the application, load the external content and make `webViewOverlay` visible.

Java implementation – continued

- Now, implement the Java code of the Cordova plug-in. Create a new class, `WebViewOverlayPlugin.java`:

```
public class WebViewOverlayPlugin extends CordovaPlugin {
    ...
    ...
} else if (action.equals(ACTION_CLOSE_WEBVIEWOVERLAY)) {
    IncludeExternalPages.thisapp.runOnUiThread(new Runnable() {
        public void run() {
            IncludeExternalPages.loadWebViewOverlayContent("");
            IncludeExternalPages.setWebViewOverlayVisibility(View.INVISIBLE);
            IncludeExternalPages.clearWebViewOverlayHistory();
        }
    });
    return true;
} else
    return false;
}
```

After you receive a “close” request from the web part of the application, clean the `webViewOverlay` and hide it.

Java implementation – continued

- Now, implement the Java code of the Cordova plug-in. Create a new class, `WebViewOverlayPlugin.java`:

```
public class WebViewOverlayPlugin extends CordovaPlugin {  
    ...  
    ...  
    } else if (action.equals(ACTION_CLOSE_WEBVIEWOVERLAY)) {  
        IncludeExternalPages.thisapp.runOnUiThread(new Runnable() {  
            public void run() {  
                IncludeExternalPages.loadWebViewOverlayContent("");  
                IncludeExternalPages.setWebViewOverlayVisibility(View.INVISIBLE);  
                IncludeExternalPages.clearWebViewOverlayHistory();  
            }  
        });  
        return true;  
    } else  
        return false;  
}  
}
```

Notice that the UI-related actions are performed on a dedicated UI thread.

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JavaScript implementation

- In JavaScript™, create a **WebViewOverlayPlugin** object and populate it with the required methods.

```
function WebViewOverlayPlugin() {};  
  
WebViewOverlayPlugin.prototype.open = function() {  
    cordova.exec(null, null, 'WebViewOverlayPlugin',  
    'open', []);  
};  
  
WebViewOverlayPlugin.prototype.close = function() {  
    cordova.exec(null, null, 'WebViewOverlayPlugin',  
    'close', []);  
};  
  
window.webViewOverlay = new WebViewOverlayPlugin();
```

JavaScript implementation – continued

- Analyze the clicked tab ID and show or hide the webViewOverlay accordingly.

```
function tabClicked(id) {
    WL.Logger.debug("tabClicked >> id :: " + id);
    $(".tab").addClass('hidden');
    if (id=="3") {
        openWebViewOverlay();
    } else {
        $("#tab" + id).removeClass('hidden');
        closeWebViewOverlay();
    }
}

function openWebViewOverlay() {
    WL.Logger.debug("openWebViewOverlay");
    window.webViewOverlay.open();
}

function closeWebViewOverlay() {
    WL.Logger.debug("closeWebViewOverlay");
    window.webViewOverlay.close();
}
```

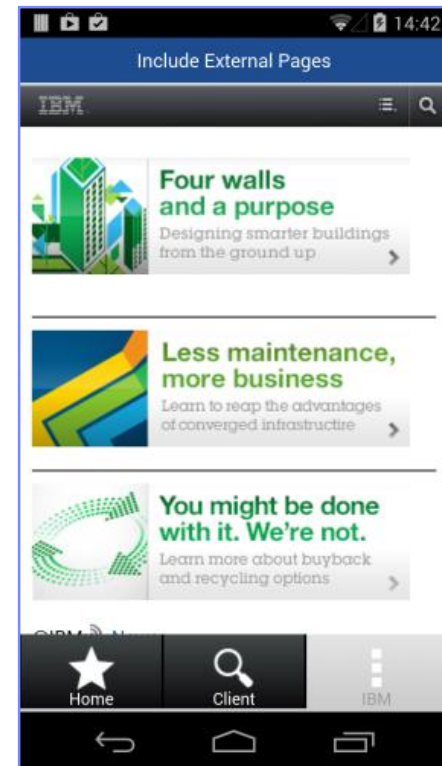
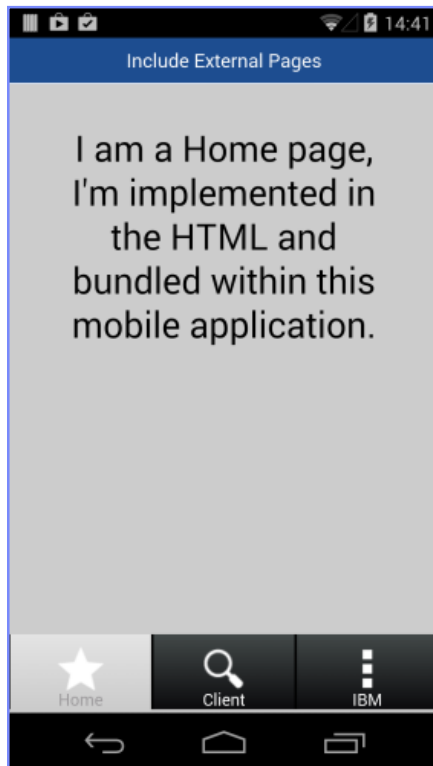
Loading external content
can take time, so consider
adding a Busy Indicator to
improve the user
experience.

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Examining the result

- 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>. The sample also includes iOS implementation.



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