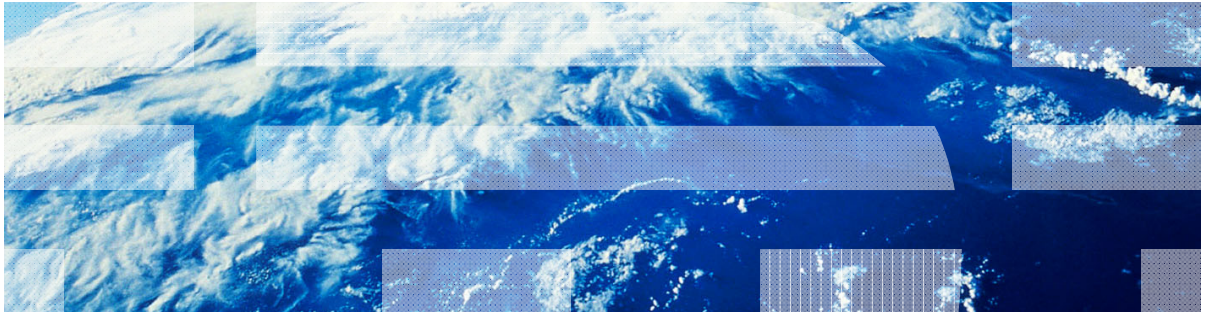


IBM Worklight V5.0.5 Getting Started

Module 18 – Java ME Development Using Worklight API in a Native Application



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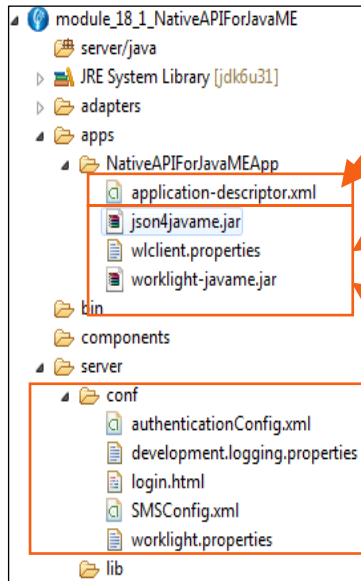
- Creating a Worklight® Native API
- Create and configure a Java™ ME Native application
- Initializing WLClient
- Invoking a Worklight Procedure
- Receiving a Procedure response
- For Blackberry

Creating a Worklight Native API (1 of 3)

- IBM Worklight® provides the ability for Java™ Platform, Micro Edition (Java ME) applications to communicate with a Worklight Server by using Worklight native API library.
- To serve Java ME application, Worklight Server needs to be aware of it.
- The IBM Worklight native API is located in the **apps** folder of your Worklight project.
- The IBM Worklight native API folder serves two purposes:
 - It contains a native API library and configuration file that must be copied to your Java ME project
 - It contains the application-descriptor.xml file, which can be deployed to a Worklight Server to serve as an entry point
- In this module, you learn how to create a Worklight native API and use its components in your Java ME application.
- **Important:** Java ME native API contains no support for authentication features.

Creating a Worklight Native API (2 of 3)

- A Worklight Native API contains several components:



The **application-descriptor.xml** file is used to define the application metadata and to configure the security settings to be enforced by Worklight Server.

The **wlclient.properties** file contains the connectivity settings to be used by a native Java ME application. You must copy this file to your native Java ME project.

The **worklight-javame.jar** and **json4javame.jar** files define the Worklight API library that you must copy to your native Java ME project.

Like any other Worklight project, you define the server configuration by modifying the files in the **server\conf** folder.

Creating a Worklight Native API (3 of 3)

1. In Worklight Studio, create a Worklight project, and add a Worklight Native API.
2. In the New Worklight Native API dialog, enter your application name, and select **JavaME** for the **Environment** field.
3. Build and Deploy your Worklight Native API.

Agenda

- Creating a Worklight® Native API
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Create and configure a Java™ ME Native application

1. Create a native Java ME application.
2. Copy the **worklight-javame.jar** and **json4javame.jar** files from the Worklight Native API folder to the native Java ME application, under the **/lib** directory.
3. Copy the **wlclient.properties** file from the Worklight Native API folder to the new native Java ME application under the **/res** directory.

Agenda

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- Create and configure a Java™ ME Native application
- Initializing WLClient
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- Receiving a Procedure response
- For Blackberry

Initializing WLClient

- Start by creating an instance of **WLClient**.

```
private WLClient client;  
  
public JavaMENativeApp() {  
    client = WLClient.createInstance();  
}
```

- To establish the connection to a Worklight Server, use the **connect** method, specifying a **MyConnectListener** class instance as a parameter.

```
public void commandAction(Command command, Item item) {  
    StringItem itemName = (StringItem)item;  
    if(itemName.getText().equals("1.Connect")) {  
        updateTextView("\nConnecting...");  
        client.connect(new MyConnectListener());  
    }  
}
```

– See next slides to learn how to create it.

MyConnectListener

- The **WLClient** instance first connects to the Worklight Server, following the properties of the **wlclient.properties** file.
- After the connection is done, it calls one of the methods of the *MyConnectListener* class.
 - The *MyConnectListener* class implements the *WLResponseListener* interface

```
public class MyConnectListener implements WLResponseListener {
```

- The *WLResponseListener* interface specifies the following methods:
 - *public void onSuccess (WLResponse response) { }*
 - *public void onFailure (WLFailResponse response) { }*
- Use these methods to process connection successes or failures.

Agenda

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- For Blackberry

Invoking a Worklight Procedure (1 of 3)

- After the connection is established with a Worklight Server, you can use the WLCClient instance to call the adapter procedures:

```
}else if(itemName.getText().equals("2.Invoke Procedure")) {  
    updateTextView("\nInvoking procedure...");  
    String adapterName = "RSSReader";  
    String procedureName = "getFeedsFiltered";  
  
    WLProcedureInvocationData invocationData = new WLProcedureInvocationData(adapterName, procedureName);  
  
    Object[] parameters = new Object[] {};  
    invocationData.setParameters(parameters);  
  
    WLRequestOptions options = new WLRequestOptions();  
    client.invokeProcedure(invocationData, new MyInvokeListener(), options);  
}
```

- Create a WLProcedureInvocationData object with the adapter and procedure names.

Invoking a Worklight Procedure (2 of 3)

- After the connection is established with a Worklight Server, you can use the WLCClient instance to call the adapter procedures:

```
}else if(itemName.getText().equals("2.Invoke Procedure")) {  
    updateTextView("\nInvoking procedure...");  
    String adapterName = "RSSReader";  
    String procedureName = "getFeedsFiltered";  
  
    WLProcedureInvocationData invocationData = new WLProcedureInvocationData(adapterName, procedureName);  
  
    Object[] parameters = new Object[] {};  
    invocationData.setParameters(parameters);  
  
    WLRequestOptions options = new WLRequestOptions();  
    client.invokeProcedure(invocationData, new MyInvokeListener(), options);  
}
```

- Add the required parameters as an Object array, and set the request options.

Invoking a Worklight Procedure (3 of 3)

- After the connection is established with a Worklight Server, you can use the WLCClient instance to call the adapter procedures:

```
}else if(itemName.getText().equals("2.Invoke Procedure")) {  
    updateTextView("\nInvoking procedure...");  
    String adapterName = "RSSReader";  
    String procedureName = "getFeedsFiltered";  
  
    WLProcedureInvocationData invocationData = new WLProcedureInvocationData(adapterName, procedureName);  
  
    Object[] parameters = new Object[] {};  
    invocationData.setParameters(parameters);  
  
    WLRequestOptions options = new WLRequestOptions();  
    client.invokeProcedure(invocationData, new MyInvokeListener(), options);  
}
```

- Specify a MyInvokeListener class instance as a parameter.
 - See next slides for how to define such an instance.

Agenda

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Receiving a Procedure response (1 of 3)

- After the procedure call completes, the **WLClient** instance calls one of the methods of the **MyInvokeListener** class.
- The **MyInvokeListener** class implements the **WLResponseListener** interface

```
import com.worklight.wlclient.api.WLFailResponse;  
import com.worklight.wlclient.api.WLResponse;  
import com.worklight.wlclient.api.WLResponseListener;  
  
public class MyInvokeListener implements WLResponseListener {
```

- The **WLClient** calls its **onSuccess** or **onFailure** methods (see next).

Receiving a Procedure response (2 of 3)

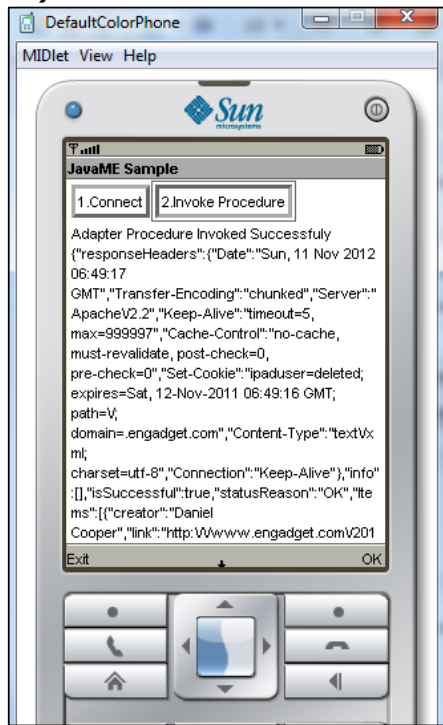
- If the procedure call is successful, the **onSuccess** method of the **MyInvokeListener** instance is called.
- Use it to get the data that is retrieved from the adapter.

```
public class MyConnectListener implements WLResponseListener {  
    public void onSuccess(WLResponse response) {  
        String responseText = response.getResponseText();  
        JavaMENativeApp.updateTextView("Connected Successfully\n" + responseText);  
    }  
  
    public void onFailure(WLFailResponse response) {  
        String responseText = response.getResponseText();  
        JavaMENativeApp.updateTextView("Connection Failure\n" + responseText);  
    }  
}
```

- The **response** object contains the response data.
 - You can use its methods and properties to retrieve the required information.

Receiving a Procedure response (3 of 3)

- 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 contains two projects:
 - **module_18_NativeAPIForJavaME.zip** contains a Worklight Native API to be deployed to your Worklight Server.
 - **module_18_JavaMENativeApp.zip** contains native Java ME application that uses Worklight native API library to communicate with Worklight Server.
- **Important:** Make sure to update the **wlclient.properties** file in the JavaMENativeApp with the server settings that are relevant to you.



Agenda

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For Blackberry

- Use the **createInstance(String connectionString)** method for Blackberry to create the **WLCClient** instance.
- Blackberry has different ways to make network (HTTP or Socket) connection.
 - To identify the type of network connection that you use to connect to Worklight Server, pass the appropriate string argument to the **createInstance()** method.
 - For example: `deviceside=true`
 - For more information, see the Blackberry Developers Knowledge Base, at:
 - http://www.blackberry.com/knowledgecenterpublic/livelink.exe/fetch/2000/348583/800451/800563/What_Is_Different_ways_to_make_an_HTTP_or_socket_connection.html?nodeid=826935&vernum=0

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