Invoking adapter procedures from native Java Platform, Micro Editions (JavaME) applications

- Download MobileFirst project (https://github.com/MobileFirst-Platform-Developer-Center/InvokingAdapterProcedures)
- Download Native project (https://github.com/MobileFirst-Platform-Developer-Center/InvokingAdapterProceduresJavaME)

Overview

IBM MobileFirst Platform Foundation provides the ability for Java™ Platform, Micro Edition (Java ME) applications to communicate with MobileFirst Server by using a MobileFirst Native API library.

This tutorial covers the following topics:

- Creating a MobileFirst native API
- Creating and configuring a Java ME native application
- Initializing WLClient
- MyConnectListener
- Invoking a MobileFirst procedure
- For BlackBerry
- Sample application

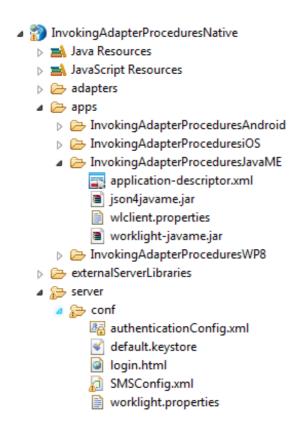
Creating a MobileFirst native API

To serve a Java ME application, MobileFirst Server must be aware of it. The MobileFirst native API is in the apps folder of your MobileFirst project. The MobileFirst native API folder serves two purposes:

- It contains a native API library and configuration file that you must copy to your Java ME project.
- It contains the application-descriptor.xml file, which you can deploy to a MobileFirst Server instance to serve as an entry point.

In this module, you learn how to create a MobileFirst native API and use its components in your Java ME application.

A MobileFirst native API contains several components:



(http://developer.ibm.com/mobilefirstplatform/wp-content/uploads/sites/32/2014/07/JavaMEProjectStructure.png)

- You use the application-descriptor.xml file to define the application metadata and to configure the security settings that MobileFirst Server enforces.
- The wlclient.properties file contains the connectivity settings that a native Java ME application uses. You must copy this file to your native Java ME project.
- The worklight-javame.jar and json4javame.jar files define the MobileFirst native API library that you must copy to your native Java ME project.

As for any other MobileFirst project, you define the server configuration by modifying the files in the server\conf folder.

- 1. In MobileFirst Studio, create a MobileFirst project and add a MobileFirst native API.
- 2. In the New MobileFirst Native API dialog, enter your native API name and select **JavaME** for the **Environment** field.
- 3. Right-click the MobileFirst native API folder and select Run As > Deploy Native API.

Creating and configuring a Java ME native application

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

Initializing WLClient

1. Create an instance of WLClient.

```
[code lang="java"]
private WLClient client;
public MainMidlet() {
  client = WLClient.createInstance(this);
[/code]
```

2. To establish the connection to a MobileFirst Server instance, use the connect method and specify a MyConnectListener class instance as the parameter.

```
[code lang="java"]

public void commandAction(Command command, Item item) {

StringItem itemName = (StringItem)item;

if(itemName.getText().equals("1.Connect")) {

updateTextView("\nConnecting...");

client.connect(new MyConnectListener());

[/code]
```

MyConnectListener

The WLClient instance first connects to MobileFirst Server, according to the properties of the wlclient.properties file.

After the connection is established, it calls one of the methods of the MyConnectListener class. The MyConnectListener class implements the WLResponseListener interface.

[code lang="java"]public class MyConnectListener implements WLResponseListener {[/code]

The WLResponseListener interface specifies the following methods:

```
[code lang="java"]public void onSuccess (WLResponse response) { }[/code]
```

[code lang="java"]public void onFailure (WLFailResponse response) { } [/code]

Use these methods to process connection success or connection failure.

Invoking a MobileFirst procedure

After the connection is established with a MobileFirst Server, you can use the WLClient instance to call the adapter procedures:

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

```
[code lang="java"]
else if(itemName.getText().equals("2.Invoke Procedure")) {
  updateTextView("\nInvoking procedure...");
  String adapterName = "RSSReader";
  String procedureName = "getFeed";

WLProcedureInvocationData invocationData = new
  WLProcedureInvocationData(adapterName, procedureName);
}[/code]
```

After the connection is established with a MobileFirst Server, you can use the WLClient instance to call the adapter procedures.

2. Add the required parameters as an object array and set the request options.

```
[code lang="java"]
Object[] parameters = new Object[] {};
invocationData.setParameters(parameters);
WLRequestOptions options = new WLRequestOptions();
[/code]
```

3. Specify a MyInvokeListener class instance as a parameter.

```
[code lang="java"]client.invokeProcedure(invocationData, new MyInvokeListener(), options); [/code]
```

After the procedure call completes, the WLClient instance calls one of the methods of the MyInvokeListener class.

The MyInvokeListener class implements the WLResponseListener interface.

The WLClient calls its onSuccess or onFailure methods.

If the procedure call is successful, the onSuccess method of the MyInvokeListener instance is called.

4. Use it to get the data that is retrieved from the adapter.

```
[code lang="java"]
import com.worklight.wlclient.api.WLFailResponse;
import com.worklight.wlclient.api.WLResponse;
import com.worklight.wlclient.api.WLResponseListener;
public class MyInvokeListener implements WLResponseListener {
  public void onSuccess(WLResponse response) {
    String responseText = response.getResponseText();
    MainMidlet.updateTextView("Adapter Procedure Invoked Successfuly\n"+ responseText);
  }
  public void onFailure(WLFailResponse response) {
    String responseText = response.getResponseText();
    MainMidlet.updateTextView("Failed to Invoke Adapter Procedure\n"+ responseText);
  }
}
[/code]
```

The response object contains the response data.

You can use its methods and properties to retrieve the required information.

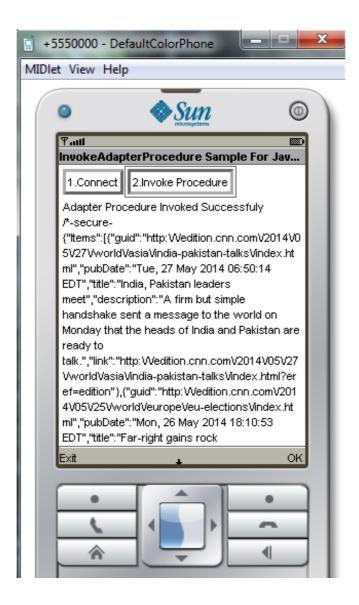
Sample application

Click to download (https://github.com/MobileFirst-Platform-Developer-Center/InvokingAdapterProcedures) the MobileFirst project.

Click to download (https://github.com/MobileFirst-Platform-Developer-

Center/InvokingAdapterProceduresJavaME) the Native project.

- The InvokingAdapterProcedures project contains a **MobileFirst native API** that you can deploy to your MobileFirst Server instance.
- The InvokingAdapterProcedures project contains a **native Java ME application** that uses the MobileFirst native API library to communicate with MobileFirst Server.
- **Important**: Make sure to update the wlclient.properties file in NativeJavaMEInvoking with the relevant server settings.



(http://developer.ibm.com/mobilefirstplatform/wp-content/uploads/sites/32/2014/07/JavaMEProcedureResponseEmulator.png)

For BlackBerry

BlackBerry has different ways to make network (HTTP or Socket) connection.

- 1. Use the createInstance(String connectionString, MIDlet midlet) method for BlackBerry to create the WLClient instance.
- 2. To identify the type of network connection that you use to connect to MobileFirst Server, pass the appropriate string argument to the createInstance(String connectionString, MIDlet midlet) method.

For example: deviceside=true

For more information, see the BlackBerry Developers Knowledge Center.