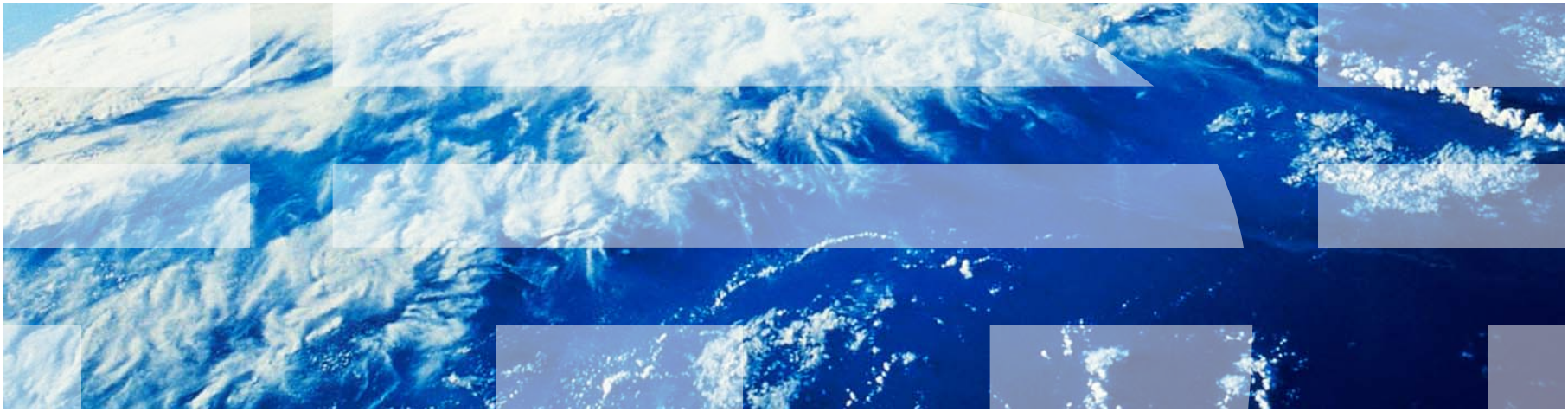
IBM Worklight V6.1.0
Getting Started

Using IBM Worklight API in native Java ME applications



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Agenda

- Creating an IBM Worklight native API
- Creating and configuring a Java ME native application
- Initializing WLCLient
- Invoking an IBM Worklight procedure
- Receiving a procedure response
- For BlackBerry

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Creating an IBM 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 an IBM Worklight native API library.
- To serve a Java ME application, the Worklight Server must be aware of it.
- The IBM Worklight native API is located in the **`apps`** folder of your IBM Worklight project.
- The IBM Worklight 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 Worklight Server to serve as an entry point.
- In this module, you learn how to create an IBM Worklight native API and use its components in your Java ME application.

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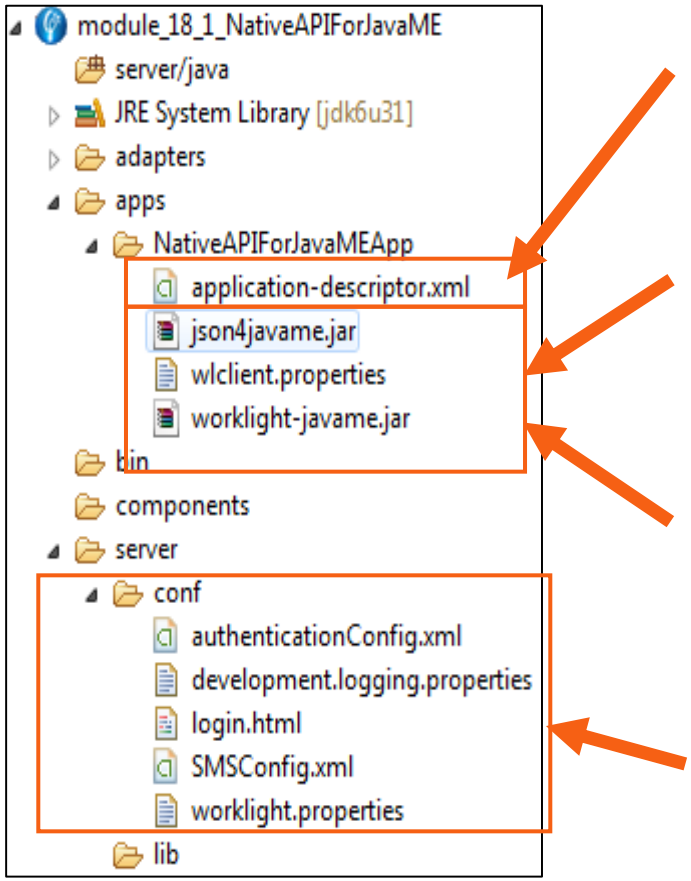
Creating an IBM Worklight native API (2 of 3)

- An IBM Worklight native API contains several components:



You use the **`application-descriptor.xml`** file to define the application metadata and to configure the security settings that the Worklight 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 IBM 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.

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Creating an IBM Worklight native API (3 of 3)

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

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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 IBM Worklight native API folder to the Java ME native application, in the **`/lib`** directory.
3. Copy the **`wlclient.properties`** file from the IBM Worklight native API folder to the new Java ME native application under the **`/res`** directory.

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Initializing WLClient

- Create an instance of **`WLClient`**.

```
private WLClient client;


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

- To establish the connection to a Worklight Server, use the **`connect`** method, and specify a **`MyConnectListener`** class instance as the 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.

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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 success or connection failure.

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Invoking an IBM Worklight Procedure (1 of 3)

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

```
}else if(itemName.getText().equals("2.Invoke Procedure")) {
    updateTextView("\nInvoking procedure...");
    String adapterName = "RSSReader";
    String procedureName = "getStoriesFiltered";

    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.

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Invoking an IBM Worklight Procedure (2 of 3)

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

```
}else if(itemName.getText().equals("2.Invoke Procedure")) {
    updateTextView("\nInvoking procedure...");
    String adapterName = "RSSReader";
    String procedureName = "getStoriesFiltered";

    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.

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Invoking an IBM Worklight Procedure (3 of 3)

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

```
}else if(itemName.getText().equals("2.Invoke Procedure")) {
    updateTextView("\nInvoking procedure...");
    String adapterName = "RSSReader";
    String procedureName = "getStoriesFiltered";

    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 to learn how to define such an instance.

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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 the next slide).

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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 Successfuly\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.

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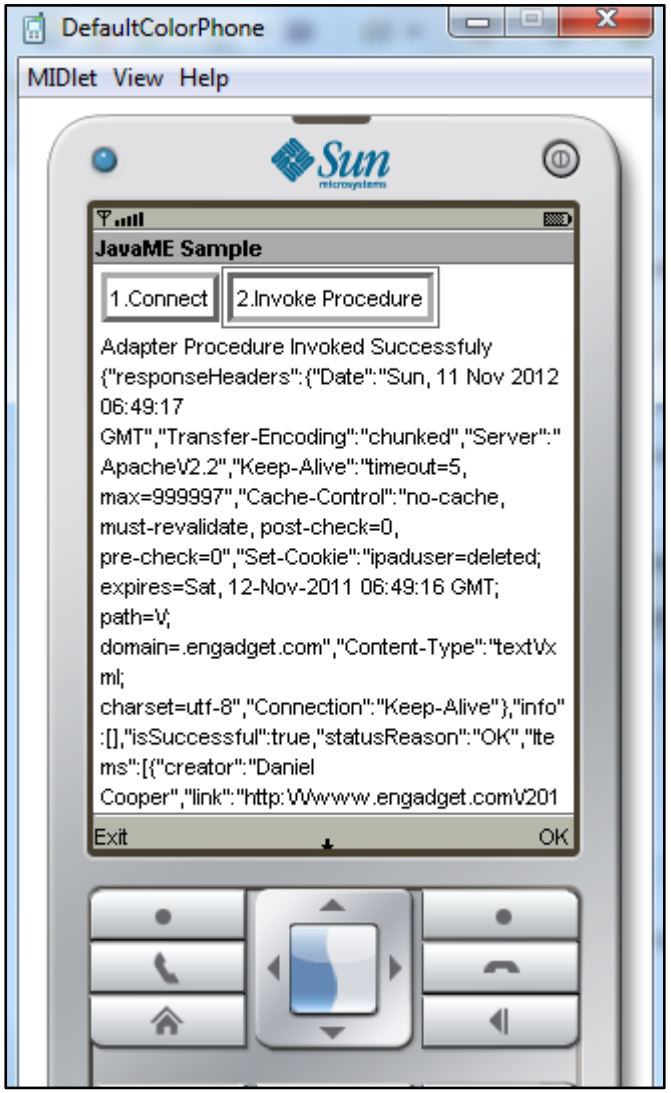
Receiving a procedure response (3 of 3)

- You can find the sample for this training module in the Getting Started page of the IBM Worklight documentation website at http://www.ibm.com/mobile-docs
- The sample contains two projects:
  - The **`NativeAPIForJavaME.zip`** file contains an IBM Worklight native API that you can deploy to your Worklight Server.
  - The **`JavaMENativeApp.zip`** file contains a native Java ME application that uses the IBM Worklight native API library to communicate with the Worklight Server.
- **Important**: Make sure to update the **`wlclient.properties`** file in **`JavaMENativeApp`** with the relevant server settings.



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For BlackBerry

- Use the **`createInstance(String connectionString, MIDlet midlet)`** method for BlackBerry to create the **`WLClient`** 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 the Worklight 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 Base at http://supportforums.blackberry.com/t5/Java-Development/Different-ways-to-make-an-HTTP-or-socket-connection/ta-p/445879.

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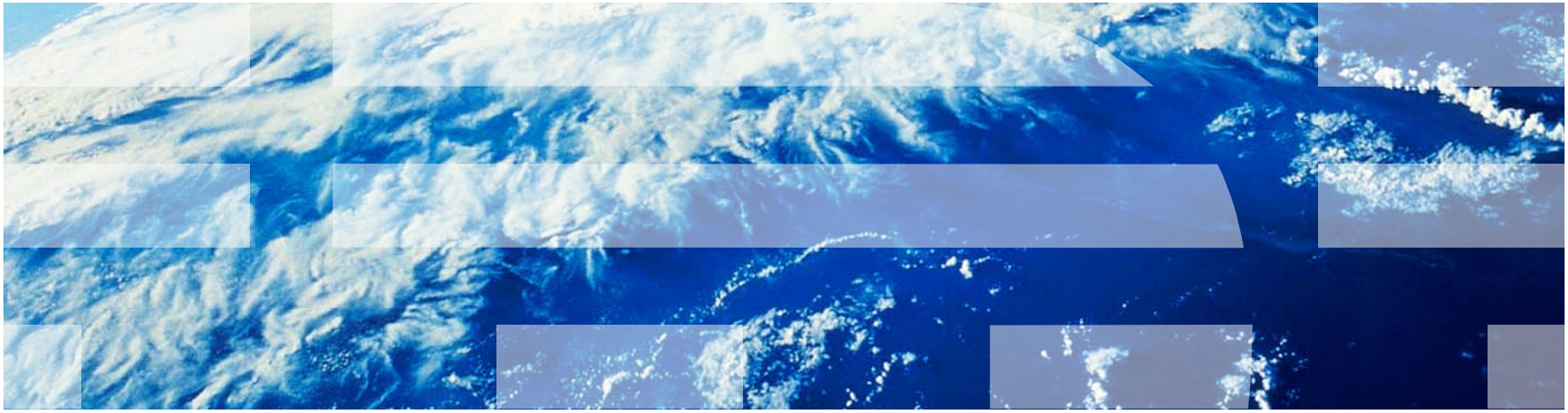

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