JavaScript JMS Adapter

Overview

Java Message Service (JMS) is the standard messaging Java API.
With a JMS adapter, you can read and write messages from any messaging provider that supports the API.

> WebSphere Application Server Liberty profile included with IBM MobileFirst™ Platform Foundation does not contain the built-in Liberty JMS features. JMS is supported by the WebSphere Application Server Liberty profile V8.5 ND (Network Deployment) server. Look for "Enabling JMS" in the documentation for WebSphere Application Server.

This tutorial covers the following topics:

- Creating the adapter
- Enable JMS in Server.xml
- Connection properties
- JMS API
- Configurations for external JMS providers
- Sample application

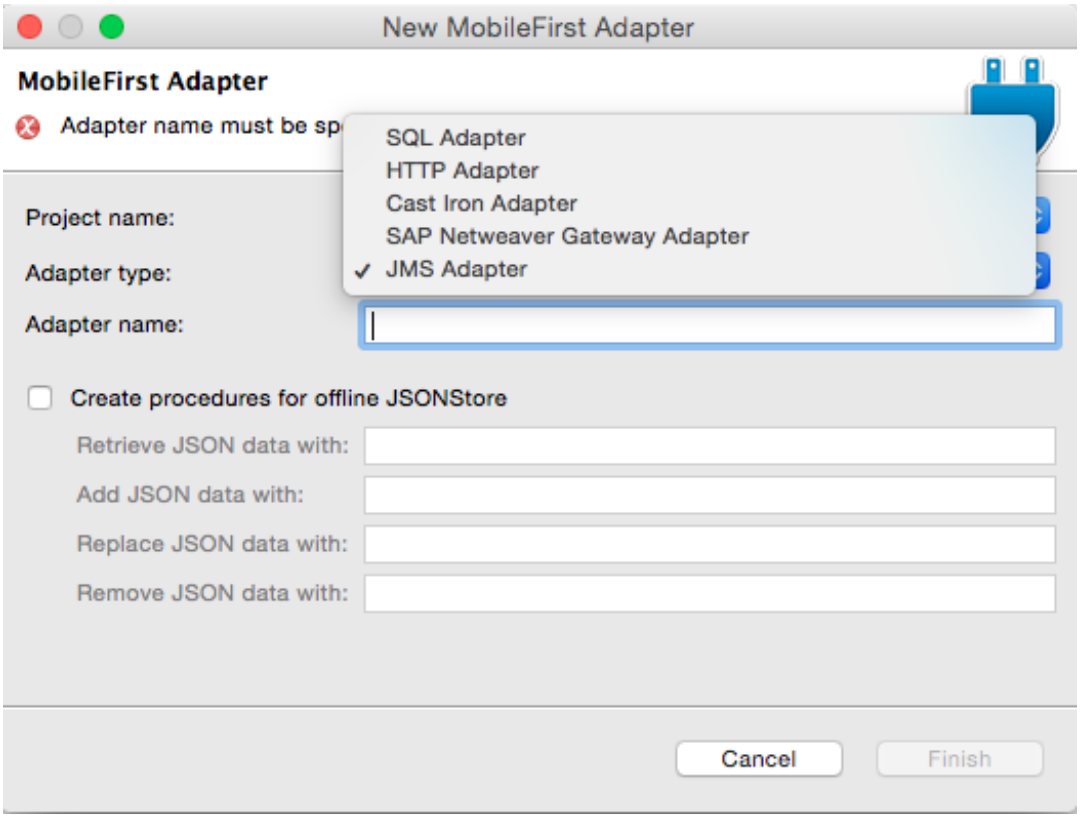
Creating the adapter

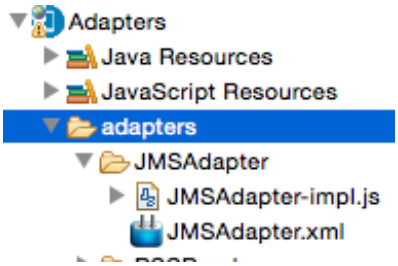
CLI

From the project's directory, use `mfp add adapter` and follow the interactive instructions.

Studio

In MobileFirst Platform Foundation Studio, create an adapter and select the **JMS Adapter** type. A standard JMS Adapter structure is created.





Public procedures are declared in the XML file while implemented in the JavaScript file. The procedure name in the JavaScript file must match the one declared in the XML file.

Procedure implementation

Procedures are implemented in the adapter JavaScript file.
Procedure names in the JavaScript file must be the same as in the adapter XML file.

XML file

```
...
<procedure name="writeMessage"/>
<procedure name="readMessage"/>
<procedure name="readAllMessages"/>
```

JS file

```
...
function writeMessage(messagebody) {
  ...
  ...
}
```

The `destination` parameter is the target for messages that are produced by the client, and the source for the messages that are used by the client.

```
function writeMessage(messagebody)
   var inputData = {
      destination: "dynamicQueues/MobileFirst",
      message:{
         body: messagebody,
         properties:{
            MY_USER_PROPERTY:123456
         }
      }
   };
   return WL.Server.writeJMSMessage(inputData)
;
}
```

Enable JMS in Server.xml

Enable JMS on your Liberty profile ND server.

```
<!-- Enable features -->
<featureManager>
  <feature>jsp-2.2</feature>
  <feature>wasJmsServer-1.0</feature
>
  <feature>wasJmsClient-1.1</feature>
  <feature>jndi-1.0</feature>
</featureManager>
```

Connection properties

Connection properties are configured in the adapter XML file.

- `namingConnection` – Necessary only if you are using an external JNDI (Java™ Naming and Directory Interface) repository.
  - `url` - The URL to the JNDI repository.
  - `initialContextFactory` - The `classname` for the factory that is used for the configuration of JNDI properties.
  - `user, password` - The credentials as set up by the JNDI administrator.
- `jmsConnection`

- `connectionFactory` - The `classname` for the JMS connection factory that contains JMS configuration properties.
- `user, password` - The credentials as set up by the JNDI administrator.

```
<wl:adapter name="JMSAdapter" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:wl
="http://www.ibm.com/mfp/integration" xmlns:jms="http://www.ibm.com/mfp/integration/jms"></p>
  <displayName>JMSAdapter</displayName>
  <description>JMSAdapter</description>
  <connectivity>
    <connectionPolicy xsi:type="jms:JMSConnectionPolicyType">
      <namingConnection
        url="tcp://9.148.225.169:61616"
        initialContextFactory="org.apache.activemq.jndi.ActiveMQInitialContextFactory"
        user="admin"
        password="admin"
        />
      <jmsConnection
        connectionFactory="ConnectionFactory"
        user="admin"
        password="admin"
        />
    </connectionPolicy>
  </connectivity></p>
  <procedure name="writeMessage" />
  <procedure name="readMessage" />
  <procedure name="readAllMessages" />
</wl:adapter>
```

Copy the relevant external libraries to the project for it to use JMS classes.
If you use **Apache ActiveMQ**, copy the `activemq-all-activemq_version_number.jar` file to the `server\lib` directory.

JMS API

- `WL.Server.readSingleJMSMessage` - Reads a single message from the given destination.
- `WL.Server.readAllJMSMessages` - Reads all messages from the given destination.
- `WL.Server.writeJMSMessage` - Writes a single JMSText message to the given destination.
- `WL.Server.requestReplyJMSMessage` - Writes a single JMSText message to the given destination and waits for the response.

readMessage

This method gets the next message from the destination.
It waits for timeout in milliseconds and returns a JMS message that contains the `body` and all available properties.

```
function readMessage() {
   var result = WL.Server.readSingleJMSMessage(
{
     destination: "dynamicQueues/MobileFirst",
     timeout: 60
   });
   return result;
}
```

Result:

readAllJMSMessages

This method takes the same parameters as the `readSingleJMSMessage` method.
It returns a list of JMS messages in the same format as the `readSingleJMSMessage` method. The result is contained in a `messages` object.

To use this method, use an external server, **not** the one that MobileFirst Studio uses.

Result:

writeMessage

This method writes a JMSText message to the destination. It features user properties that can be set.
It returns the `JMSMessageID` of the sent message.

```
function writeMessage(messagebody) {</p>
  var inputData = {
    destination: "dynamicQueues/MobileFirst",
    message:{
      body: messagebody,
      properties:{
        MY_USER_PROPERTY:123456
      }
    }
  };
  return WL.Server.writeJMSMessage(inputData)
;
}
```

Result:

requestReplyJMSMessage

This method:

- Accepts the same parameters as the `writeJMSMessage` method.
- Writes a JMSText message to the destination.
- Waits for a response on a dynamic destination.
- Is designed for services that use the `replyTo` destination from the originating message.
- Returns a JMS message in the same format as the `readSingleJMSMessage` method.

Configurations for external JMS providers

By using IBM MobileFirst Platform, you can configure access to several JMS providers. Configurations might vary depending on the selected provider.

When you work with an external JMS provider, check its documentation to learn how to implement it. Usually, such implementation requires that you copy JAR files to the `server\lib` directory of your MobileFirst project. Validate the URL and port.

Sample application

Click to download (https://github.com/MobileFirst-Platform-Developer-Center/JavaScriptAdapters/tree/release71) the MobileFirst project.

By using the attached sample, you can send and read messages to a JMS queue called `MobileFirst`. To run the sample, you need an external JMS library.