JavaScript SQL Adapter

Overview

An IBM MobileFirst Platform Foundation SQL adapter is designed to communicate with any SQL data source. You can use plain SQL queries or stored procedures.
As a developer, you must download the JDBC connector driver for the specific database type separately and add it to the `server\lib\` folder of a MobileFirst project. You can download the JDBC connector driver from the appropriate vendor website.
In this tutorial and in the accompanying sample, you learn how to use a MobileFirst adapter to connect to a MySQL database.

Prerequisite: Make sure to read the JavaScript Adapters (../) tutorial first.

The `XML` File

The XML file contains settings and metadata.

1. In the adapter XML file, declare the following parameters:

   - Driver Class
   - Database URL
   - Username
   - Password

```
<connectivity>
<connectionPolicy xsi:type="sql:SQLConnectionPolicy">
  <dataSourceDefinition>
    <driverClass>com.mysql.jdbc.Driver</driverClass>
    <url>jdbc:mysql://localhost:3306/mobilefirst_training</url>
      <user>mobilefirst</user>
      <password>mobilefirst</password>
  </dataSourceDefinition>
</connectionPolicy>
</connectivity>
```

2. Declare a procedure in the adapter XML file.

```
<procedure name="getAccountTransactions1"/>
```

JavaScript implementation

The adapter JavaScript file is used to implement the procedure logic.
There are two ways of running SQL statements:

- SQL statement query
- SQL stored procedure

1. Use the `WL.Server.createSQLStatement` method to prepare a SQL query. This method must always be called outside the function.
2. Add more parameters, if necessary.

```
//Create SQL query
var getAccountsTransactionsStatement = WL.Server.createSQLStatement(
  "SELECT transactionId, fromAccount, toAccount, transactionDate, transac
tionAmount, transactionType " +
  "FROM accounttransactions " +
  "WHERE accounttransactions.fromAccount = ? OR accounttransactions.toAcc
ount = ? " +
  "ORDER BY transactionDate DESC " +
  "LIMIT 20;"
);
```

3. Use the `WL.Server.invokeSQLStatement` method to call prepared queries.
4. Return the result to the application or to another procedure.

```
//Invoke prepared SQL query and return invocation result
function getAccountTransactions1(accountId){
  return WL.Server.invokeSQLStatement({
    preparedStatement : getAccountsTransactionsStatement,
    parameters : [accountId, accountId]
  });
}
```

5. To run a SQL stored procedure, use the `WL.Server.invokeSQLStoredProcedure` method. Specify a SQL stored procedure name as an invocation parameter.
6. Add more parameters, if necessary.
7. Return the invocation result to the application or to another procedure.

```
//Invoke stored SQL procedure and return invocation result
function getAccountTransactions2(accountId){
  return WL.Server.invokeSQLStoredProcedure({
    procedure : "getAccountTransactions",
    parameters : [accountId]

  });
}
```

Invocation Results

The result is retrieved as a JSON object:

```
{
  "isSuccessful": true,
  "resultSet": [{
    "fromAccount": "12345",
    "toAccount": "54321",
    "transactionAmount": 180.00,
    "transactionDate": "2009-03-11T11:08:39.000Z",
    "transactionId": "W06091500863",
    "transactionType": "Funds Transfer"
  }, {
    "fromAccount": "12345",
    "toAccount": null,
    "transactionAmount": 130.00,
    "transactionDate": "2009-03-07T11:09:39.000Z",
    "transactionId": "W214122\/5337",
    "transactionType": "ATM Withdrawal"
  }]
}
```

- The `isSuccessful` property defines whether the invocation was successful.
- The `resultSet` object is an array of returned records.
  - To access the `resultSet` object on the client-side: `result.invocationResult.resultSet`
  - To access the `resultSet` object on the server-side: `result.ResultSet`

Sample application

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

- To run the sample, execute the `mobilefirstTraining.sql` file (which you can find under ...) on your local MySQL server.
- Make sure that the `mobilefirst@% user` has all access permissions assigned to it.
- Remember to download and set the MySQL Java Connector in your project.