Testing and Debugging Adapters

Overview

You can debug Java code implemented for use in **Java** or **JavaScript adapters** via IDEs such as Eclipse, IntelliJ and alike.
This tutorial demonstrates debugging a Java adapter using the Eclipse IDE.

Testing Adapters

MobileFirst adapters are available via a REST interface. This means that if you know the URL of a resource, you can use HTTP tools such as Postman to test requests and pass URL parameters, path parameters, body parameters or headers as you see fit.

The structure of the URL used to access the adapter resource is:

- In JavaScript adapters - `http://<IP>:<PORT>/mfp/api/adapters/{adapter-name}/{procedure-name}`
- In Java adapters - `http://<IP>:<PORT>/mfp/api/adapters/{adapter-name}/{path}`

Using Postman

Passing parameters:

- When using Java adapters, parameters can be passed in the URL, body, form, etc, depending on how you configured your adapter.
- When using JavaScript adapters, parameters are passed as `params=["param1", "param2"]`. In other words, a JavaScript procedure receives only one parameter called `params` which needs to be an array of ordered, unnamed values. This parameter can either be in the URL (`GET`) or in the body (`POST`) using `Content-Type: application/x-www-form-urlencoded`.

Handling security:

If your resource is protected by a scope, the request prompts you to provide a valid authorization header. Note that by default, MobileFirst uses a simple security scope even if you did not specify any. So unless you specifically disabled security, the endpoint is always protected.

To disable security in Java adapters you should attach the `OAuthSecurity` annotation to the method/class:

```
@OAuthSecurity(enabled=false)
```

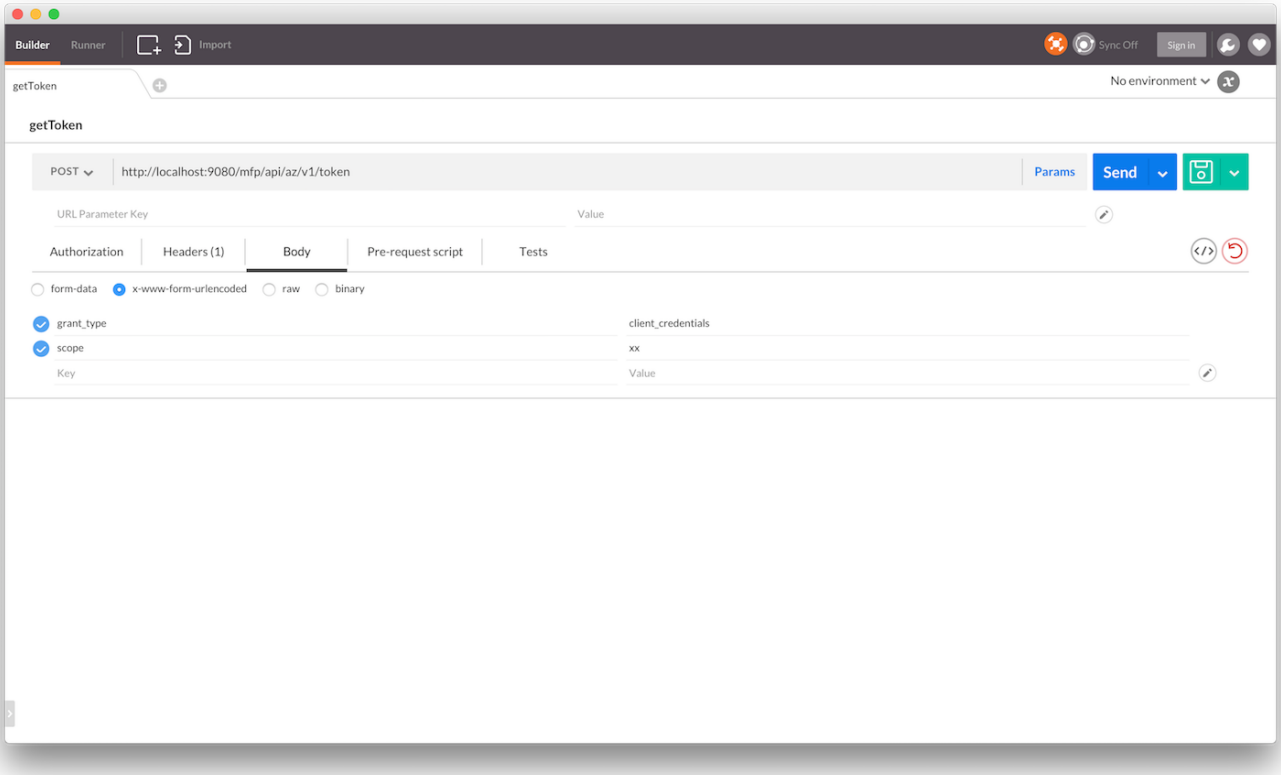
To disable security in JavaScript adapters you should add the `secured` attribute to the procedure:

```
<procedure name="proc1" secured="false"/>
```

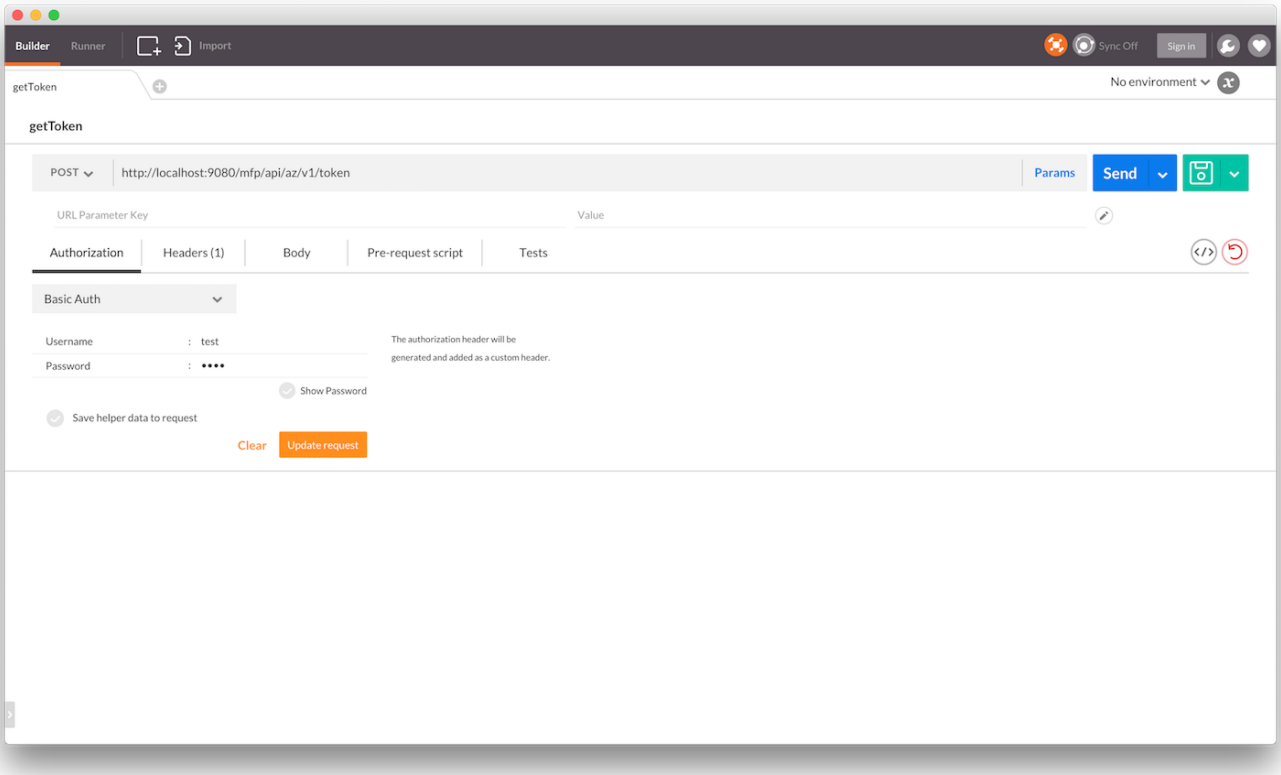
Alternatively, the development version of the MobileFirst Server includes a test token endpoint to bypass the security challenges. To receive a Test Token you should:

1. Use your HTTP client (Postman) to make an HTTP `POST` request to `http://<IP>:<PORT>/mfp/api/az/v1/token` with the following parameters using `Content-Type: application/x-www-form-urlencoded`:

grant_type : client_credentials
scope : **



2. Add an `authorization header` using `Basic authentication` with the Add link to the confidential client tutorial confidential client's ID (test) and secret (test):



The result will be a JSON object with a temporary valid access token:


```
{
  "access_token": "eyJhbGciOiJSUzI1NiIsImp3ayI6eyJlIjoiQVFBQiIsIm4iOiJBTTBEZDd4QWR2NkgteWdMN
3l4cUNMZEUtM0kya2s0NXpnWnREZF9xczhmdm5ZZmRpcVRTVjRfMnQ2T0dHOENWNUNlNDFQTXBJd2
1MNDEwWDlJWm52aHhvWWlGY01TYU9lSXFvZS1ySkEwdVp1dzJySGhYWjNXVkNlS2V6UlZjQ09Zc1FOL
W1RSzBtZno1XzNvLWV2MFVZd1hrU093QkJsMUVocUl3VkR3T2llZzJKTUdsMEVYc1BaZmtOWkktSFU0b
01paS1Uck5MelJXa01tTHZtMDloTDV6b3NVTkExNXZlQ0twaDJXcG1TbTJTNjFuRGhlN2dMRW95bURuVE
VqUFk1QW9oMmluSS0zNlJHWVZNVVViTzQ2Q3JOVVl1SW9iT2lYbEx6QklodUlDcGZWZHhUX3g3c3RLW
DVDOUJmTVRCNEdrT0hQNWNVdjdOejFkRGhJUHU4Iiwia3R5IjoiUlNBIiwia2lkIjoidGVzdCJ9fQ.eyJpc3MiOi
Jjb20uaWJtLm1mcCIsInN1YiI6InRlc3QiLCJhdWQiOiJjb20uaWJtLm1mcCIsImV4cCI6MTQ1MjUxNjczODAw
NSwic2NvcGUiOiJ4eCJ9.vhjSkv5GShCpcDSu1XCp1FlgSpMHZa-fcJd3iB4JR-xr_3HOK54c36ed_U5s3rvXVi
ao5E4HQUZ7PlEOl23bR0RGT2bMGJHiU7c0lyrMV5YE9FdMxqZ5MKHvRnSOeWlt2Vc2izh0pMMTZd-oL-0
w1T8e-F968vycyXeMs4UAbp5Dr2C3DcXCzG_h9jujsNNxgXL5mKJem8EpZPolQ9Rgy2bqt45D06QTW7J9Q
9GXKt1XrkZ9bGpL-HgE2ihYeHBygFll80M8O56By5KHwfSvGDJ8BMdasHFfGDRZUtC_yz64mH1lVxz5o0v
WqPwEuyfslTNCN-M8c3W9-6fQRjO4bw",
  "token_type": "Bearer",
  "expires_in": 3599,
  "scope": "**"
}
```

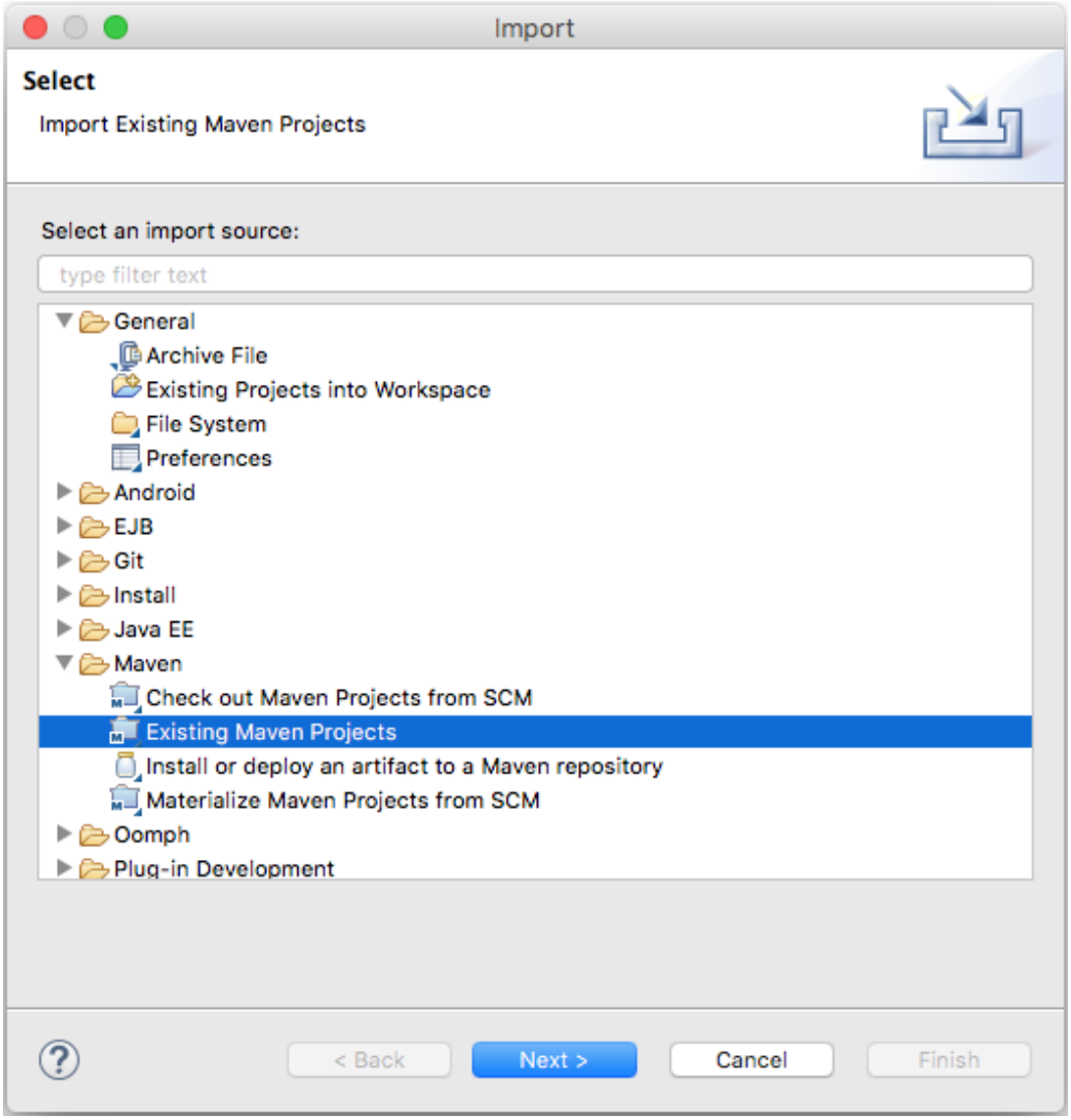

Now with any future request to adapter endpoints, add an HTTP header with the name `Authorization` and the value you received previously. The security framework will skip any security challenges protecting your resource.

Using the MobileFirst Developer CLI

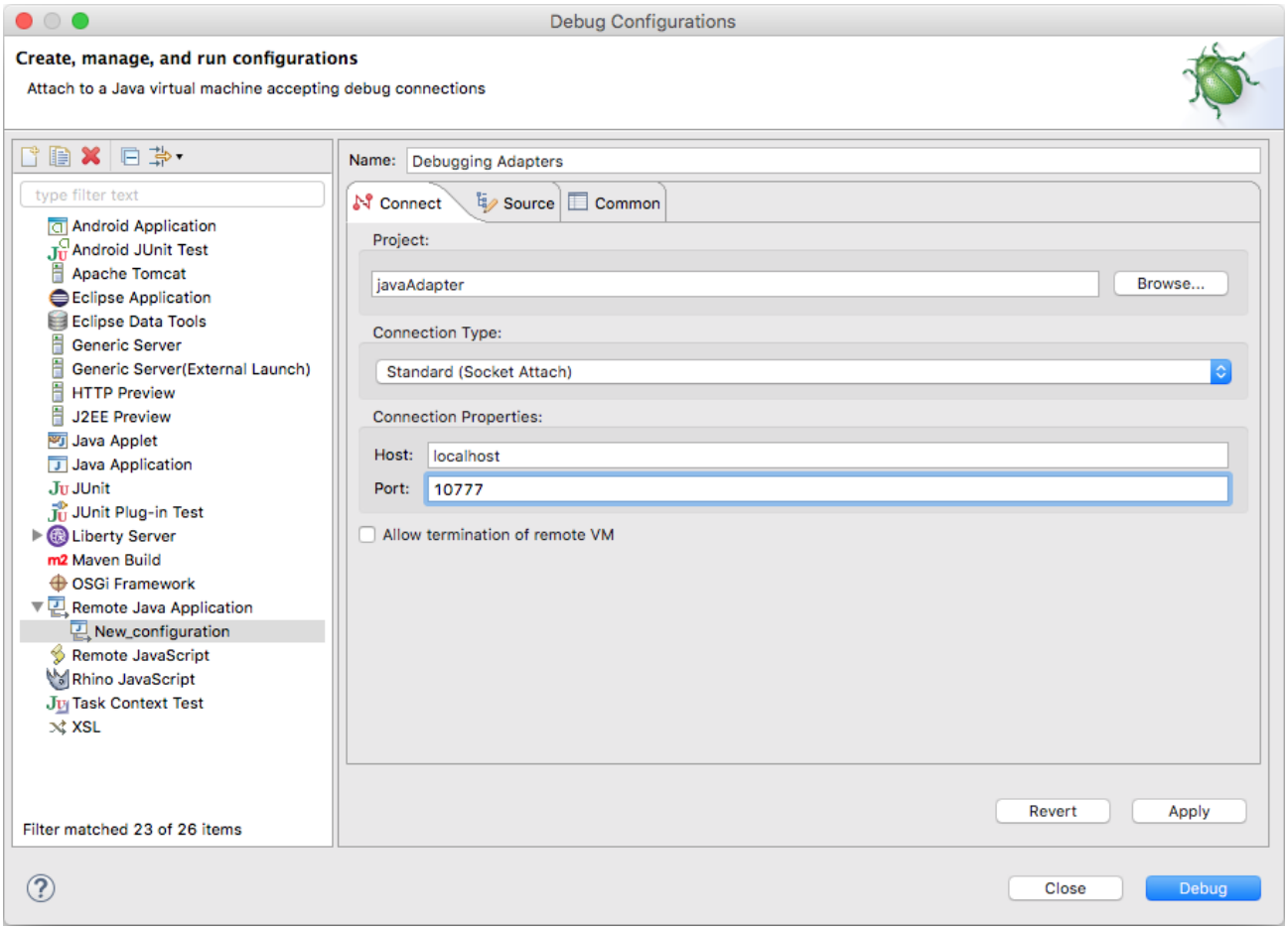
Debugging Adapters in Eclipse

Before an adapter's Java code can be debugged, Eclipse needs to be configured as follows:

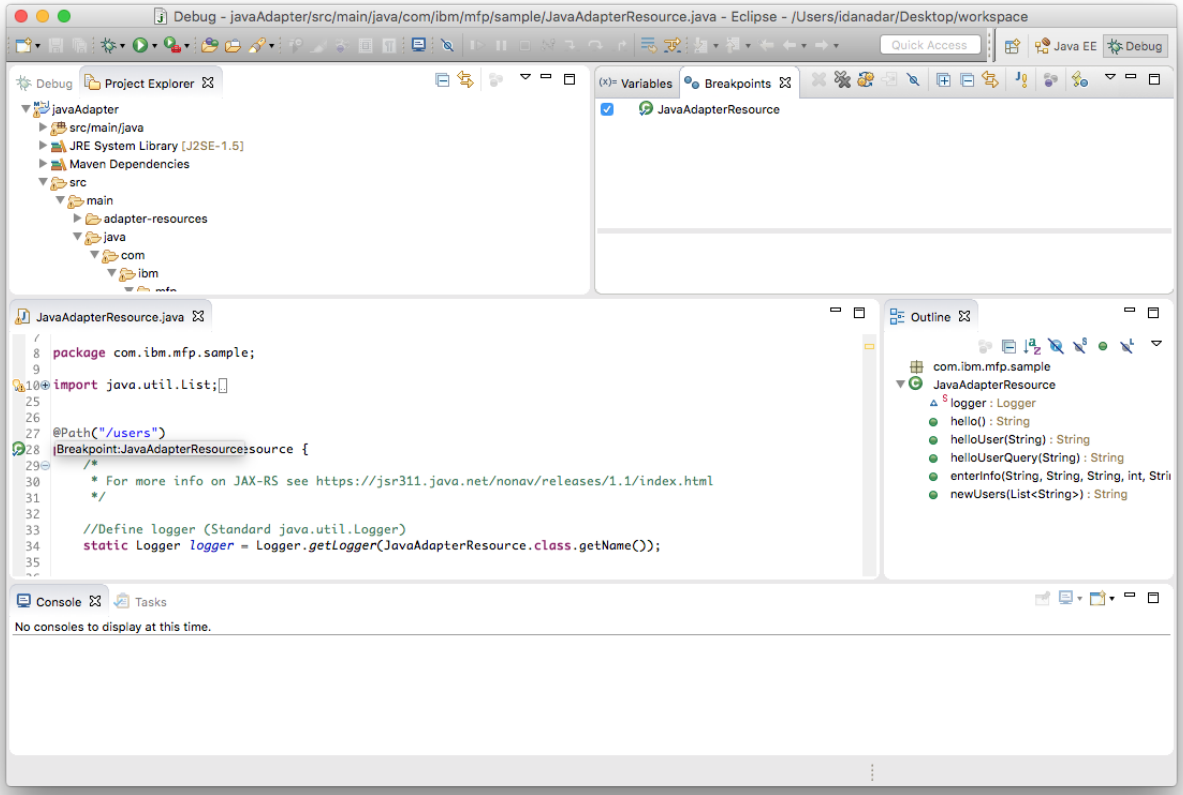
1. **Maven integration** - Starting Eclipse Kepler (v4.3), Maven support is built-in in Eclipse.
   If your Eclipse instance does not support Maven, follow the m2e instructions (http://www.eclipse.org/m2e/) to add Maven support.
2. Once Maven is available in Eclipse, import the adapter Maven project:



3. Provide debugging parameters:
    - Click **Run → Debug Configurations**.
    - Double-click on **Remote Java application**.
    - Provide a **Name** for this configuration.
    - Set the **Port** value to "10777".
    - Click **Browse** and select the Maven project.
    - Click **Debug**.



4. Click on **Window → Show View → Debug** to enter *debug mode*. You can now debug the Java code normally as you would do a standard Java application. You need to issue a request to the adapter to make its code run and hit any set breakpoints. This can be accomplished by following the instructions on how to call an adapter resource in the Testing adapters section (../creating-adapters/#testing-adapters).


Debug - javaAdapter/src/main/java/com/ibm/mfp/sample/JavaAdapterResource.java - Eclipse - /Users/idanadar/Desktop/workspace
Quick Access
Java EE
Debug
Debug
Project Explorer
javaAdapter
src/main/java
JRE System Library [J2SE-1.5]
Maven Dependencies
src
main
adapter-resources
java
com
ibm
Variables
Breakpoints
JavaAdapterResource
JavaAdapterResource.java
8 package com.ibm.mfp.sample;
10 import java.util.List;
27 @Path("/users")
28 Breakpoint:JavaAdapterResource esource {
29 /*
30 * For more info on JAX-RS see https://jsr311.java.net/nonav/releases/1.1/index.html
31 */
33 //Define logger (Standard java.util.Logger)
34 static Logger logger = Logger.getLogger(JavaAdapterResource.class.getName());
Outline
com.ibm.mfp.sample
JavaAdapterResource
logger : Logger
hello() : String
helloUser(String) : String
helloUserQuery(String) : String
enterInfo(String, String, String, int, Stri
newUsers(List<String>) : String
Console
Tasks
No consoles to display at this time.