Testing and Debugging Adapters

fork and edit tutorial (https://github.ibm.com/MFPSamples/DevCenter/tree/master/tutorials/en/foundation/8.0/adapters/testing-and-debugging-adapters/index.md) | report issue (https://github.ibm.com/MFPSamples/DevCenter/issues/new)

Overview

You can test Java and JavaScript adapters as well as debug Java code implemented for use in Java or JavaScript adapters via IDEs such as Eclipse, IntelliJ and alike.

This tutorial demonstrates how to test adapters using the MobileFirst Developer CLI and using Postman and also how to debug a Java adapter using the Eclipse IDE.

Jump to:

- Testing Adapters
 - Using Postman
 - Using Swagger
- Debugging Adapters

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://hostname-or-ip-address:port-number/mfp/api/adapters/{adapter-name}/{procedure-name}
- In Java adapters http://hostname-or-ip-address:port-number/mfp/api/adapters/{adapter-name}/{path}

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:

```
cprocedure name="adapter-procedure-name" secured="false"/>
```

Alternatively, the development version of the MobileFirst Server includes a test token endpoint to bypass the security challenges.

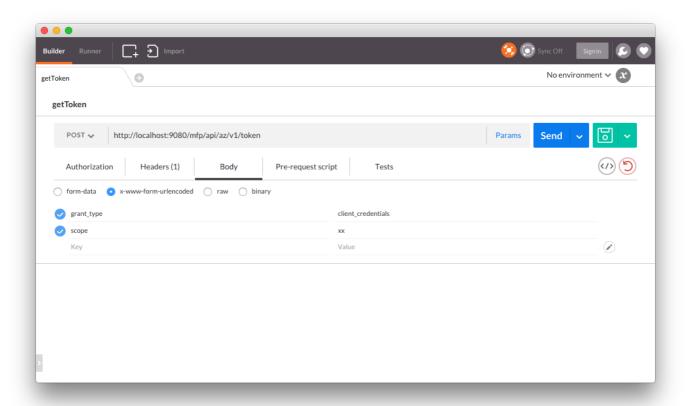
Using Postman

Test Token

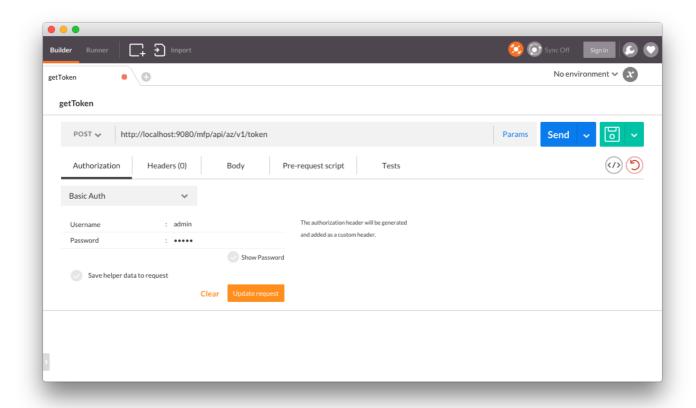
To receive a Test Token you should:

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 username "admin" and password "admin".

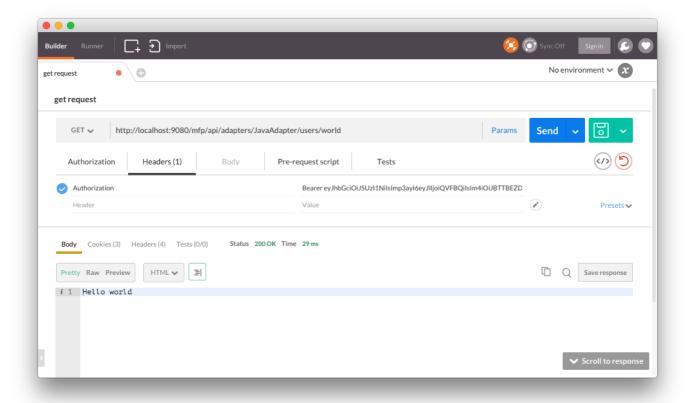


The result will be a JSON object with a temporary valid access token:

```
"access_token": "eyJhbGciOiJSUzI1NilsImp3ayl6eyJIIjoiQVFBQiIsIm4iOiJBTTBEZDd4QWR2NkgteWdM
N3I4cUNMZEUtM0kya2s0NXpnWnREZF9xczhmdm5ZZmRpcVRTVjRfMnQ2T0dHOENWNUNINDFQTXBJd
21MNDEwWDIJWm52aHhvWWIGY01TYU9ISXFvZS1ySkEwdVp1dzJySGhYWjNXVkNIS2V6UIZjQ09Zc1FO
LW1RSzBtZno1XzNvLWV2MFVZd1hrU093QkJsMUVocUl3VkR3T2llZzJKTUdsMEVYc1BaZmtOWkktSFU0
b01paS1Uck5MeIJXa01tTHZtMDloTDV6b3NVTkExNXZlQ0twaDJXcG1TbTJTNjFuRGhIN2dMRW95bURuV
EVqUFk1QW9oMmluSS0zNIJHWVZNVVViTzQ2Q3JOVVI1SW9iT2IYbEx6QklodUIDcGZWZHhUX3g3c3RL
WDVDOUJmTVRCNEdrT0hQNWNVdjdOejFkRGhJUHU4liwia3R5ljoiUlNBliwia2lkljoidGVzdCJ9fQ.eyJpc3Mi
OiJjb20uaWJtLm1mcClsInN1YiI6InRlc3QiLCJhdWQiOiJjb20uaWJtLm1mcClsImV4cCl6MTQ1MjUxNjczODA
wNSwic2NvcGUiOiJ4eCJ9.vhjSkv5GShCpcDSu1XCp1FlqSpMHZa-fcJd3iB4JR-xr 3HOK54c36ed U5s3rvX
Viao5E4HQUZ7PIEOI23bR0RGT2bMGJHiU7c0lyrMV5YE9FdMxqZ5MKHvRnSOeWlt2Vc2izh0pMMTZd-oL-
0w1T8e-F968vycyXeMs4UAbp5Dr2C3DcXCzG_h9jujsNNxgXL5mKJem8EpZPolQ9Rgy2bqt45D06QTW7J9
Q9GXKt1XrkZ9bGpL-HgE2ihYeHBygFll80M8O56By5KHwfSvGDJ8BMdasHFfGDRZUtC_yz64mH1IVxz5o0v
WqPwEuyfsITNCN-M8c3W9-6fQRjO4bw",
"token_type": "Bearer",
"expires in": 3599,
"scope": "**"
                                                                                 |
```

Sending request

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



Using Swagger

The Swagger docs UI is a visual representation of an adapter's REST endpoints. Using Swagger, a developer can test the adapter endpoints before they are consumed by a client application.

To access Swagger:

- 1. Open the MobileFirst Operations Console and select an adapter from the adapters list.
- 2. Click on the Resources tab.
- 3. Click on the View swagger Docs button.
- 4. Click on the Show/Hide button.



Test Token

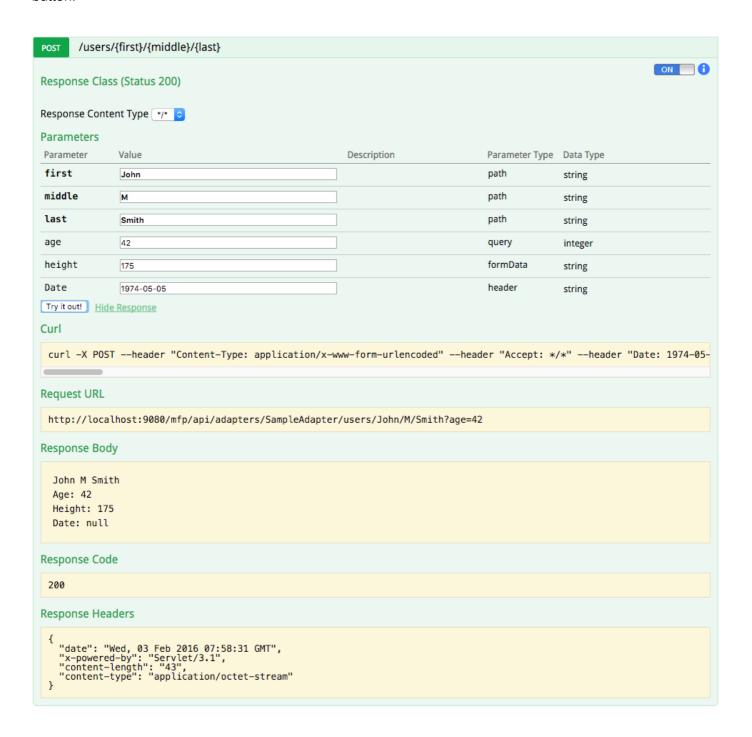
To add a Test Token to the request, so the security framework will skip any security challenges protecting your resource, click the **on/off switch** button on the right corner of an endpoint's operation.

You will be asked to select which scopes you want to grant to the Swagger UI (for testing purposes you can select all). If you are using the Swagger UI for the first time you may be required to log in with the MobileFirst Operations Console username and password.

OFF 1

Sending request

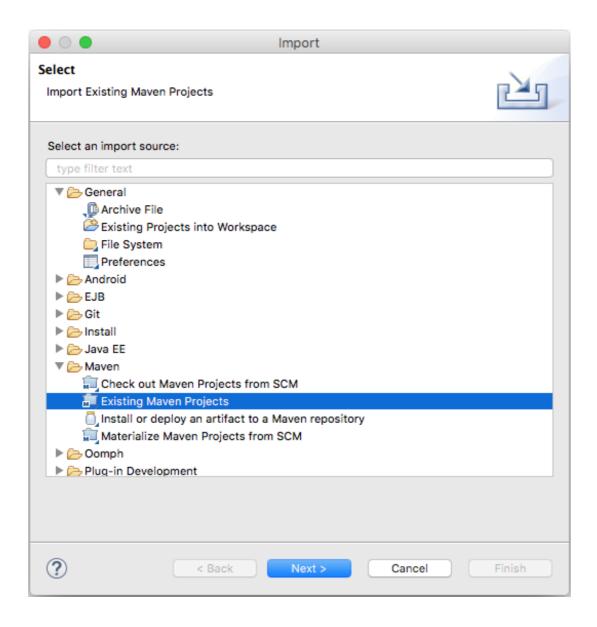
Expand the endpoint's operation, enter the required parameters (if needed) and click on the **Try it out!** button.



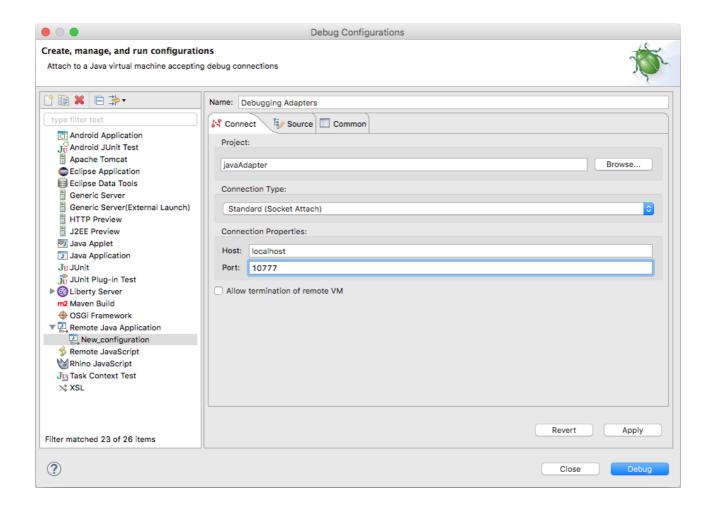
Debugging Adapters

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

- 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.
 - o 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).

