

# Testing and Debugging Adapters

## Overview

You can test 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 and debug a Java adapter using the Eclipse IDE.

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- Testing Adapters
- 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}`

## 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)
```

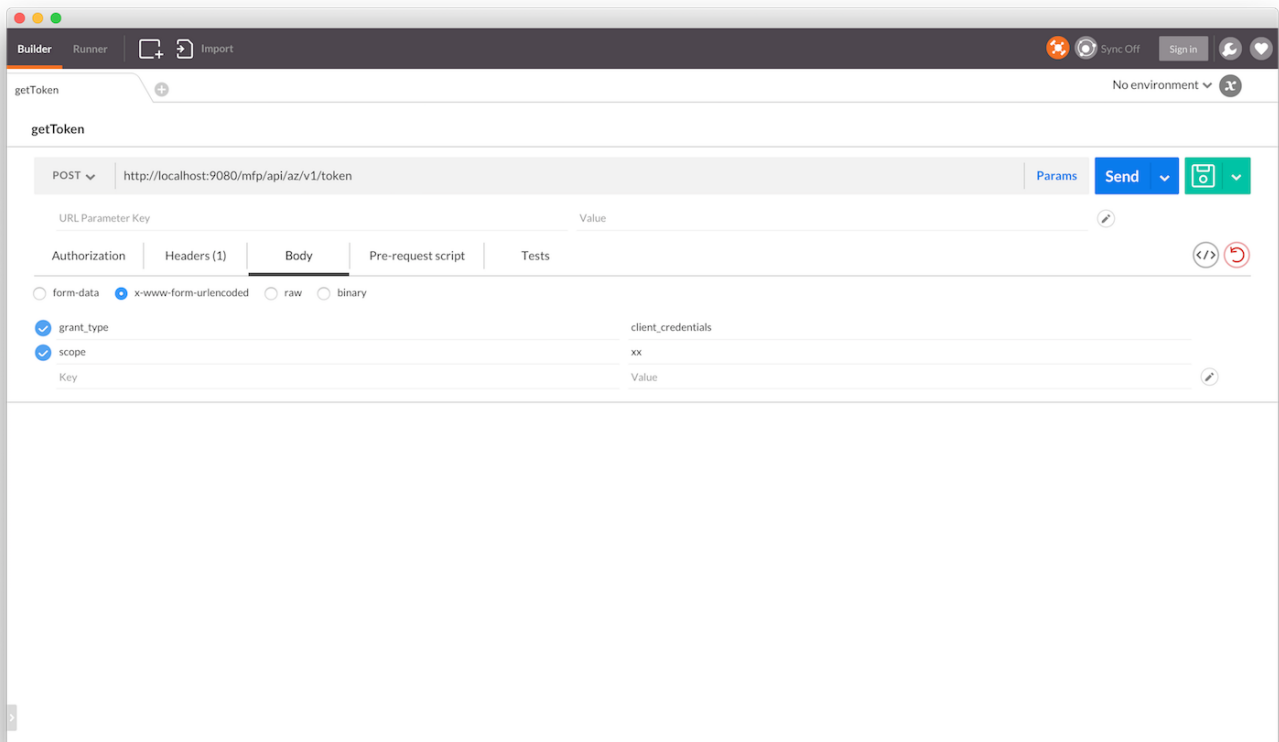
To disable security in JavaScript adapters you should add the `secured` attribute to the procedure:

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

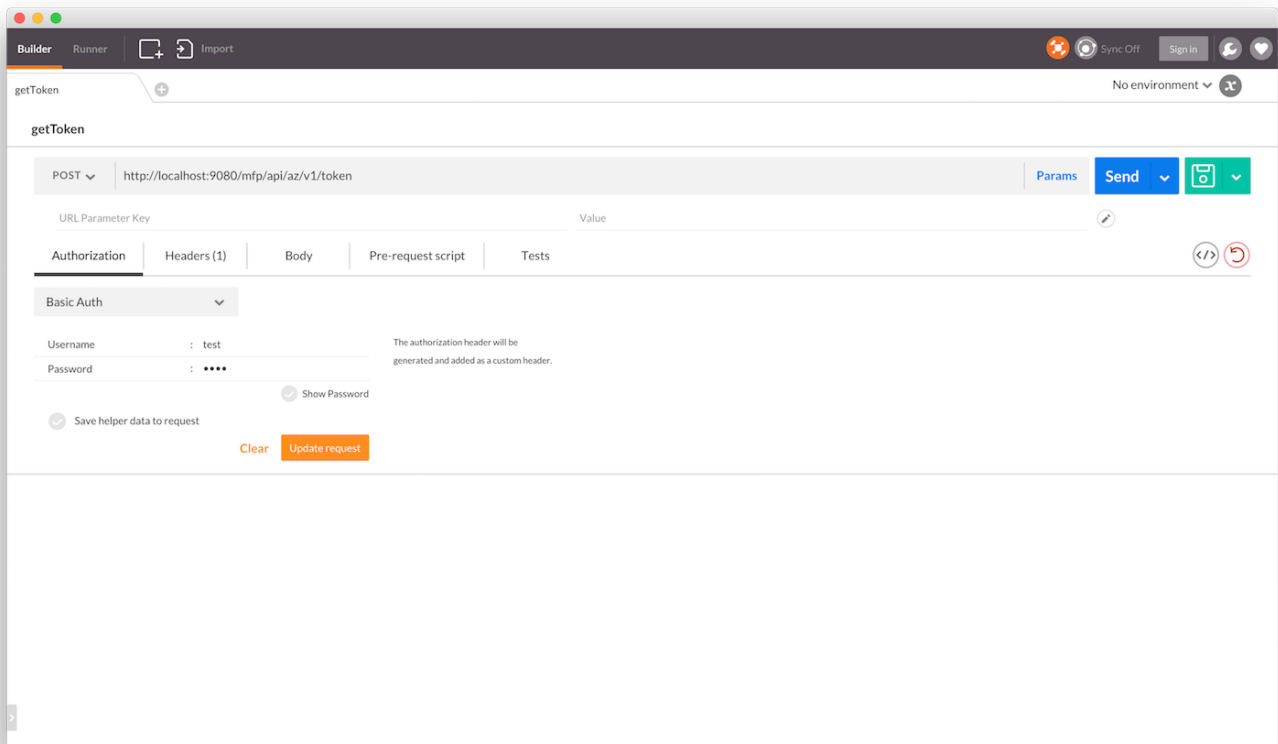
Alternatively, the development version of the MobileFirst Server includes a test token endpoint to bypass the security challenges. To receive a Test Token you should:

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:

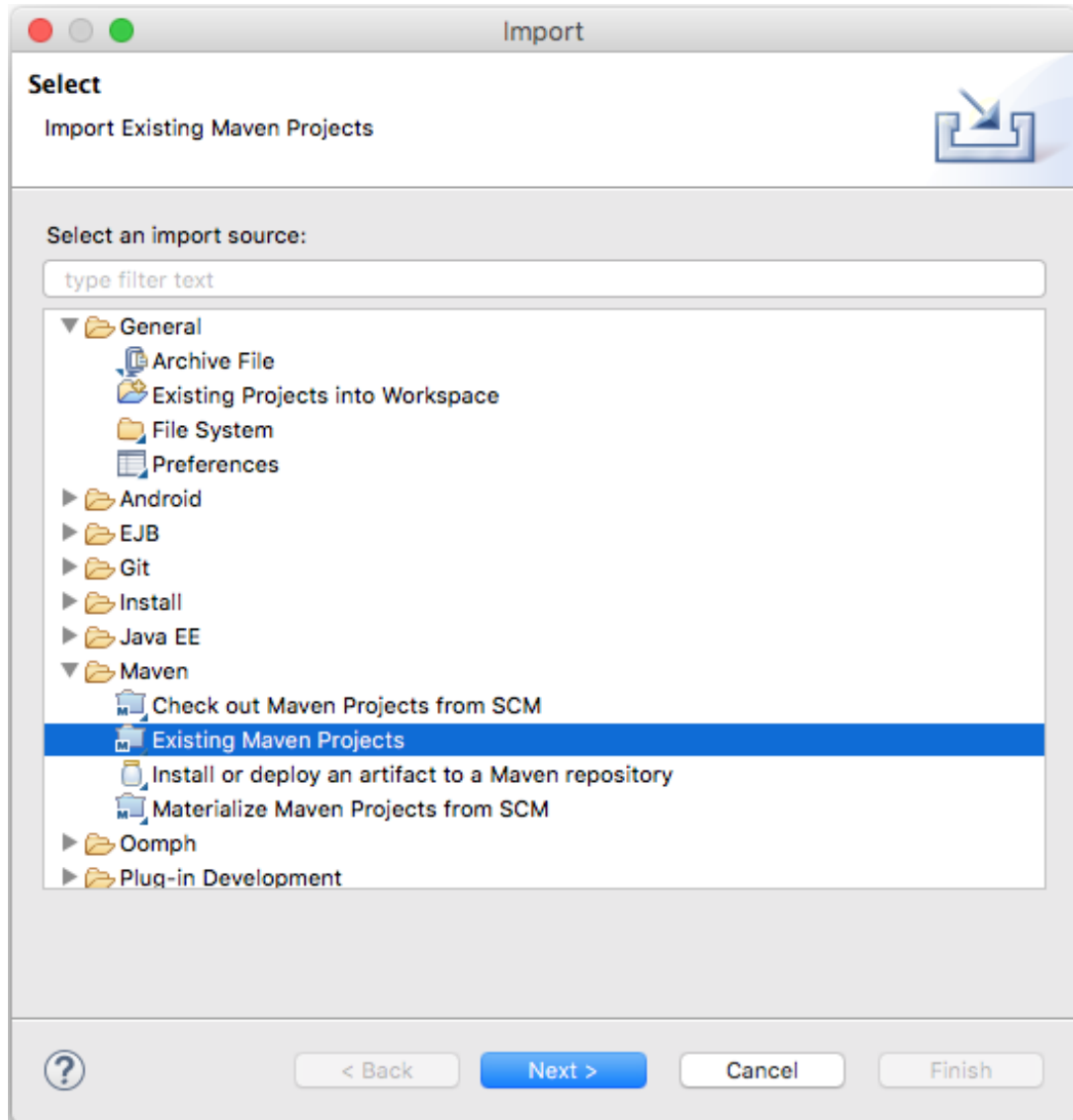
```
{
  "access_token": "eyJhbGciOiJIJSUz11NilsImp3ayl6eyJlljoiQVFBQilslm4iOiJBTTBEZDd4QWR2NkgteWdM
N3I4cUNMZEUtM0kya2s0NXpnWnREZF9xczhmdm5ZZmRpcVRTVjRfMnQ2T0dHOENWNUNINDFQTXBJd
21MNDEwWDIJWm52aHhvWWIGY01TYU9ISXFvZS1ySkEwdVp1dzJySGhYWjNXVknIS2V6UIZjQ09Zc1FO
LW1RSzBtZno1XzNvLWV2MFVZd1hrU093QkJsMUVocUI3VkR3T2lIZzJKTUdsMEVYc1BaZmtOWkktSFU0
b01paS1Uck5MelJXa01tTHZtMDloTDV6b3NVtkExNXZlQ0twaDJXcG1TbTJTNjFuRGhIN2dMRW95bURuV
EVqUFk1QW9oMmluSS0zNIJHVWVZNVVtZQ2Q3JOVVI1SW9iT2IYbEx6QklodUIDcGZWZHhUX3g3c3RL
WDVDOUJmTVRCNEdrT0hQNWNVdjdOejFkRGhJUHU4liwia3R5ljoilUNBliwia2kljoidGVzdCJ9fQ.eyJpc3Mi
OiJjb20uaWJtLm1mcClslN1YiI6InRlc3QiLCJhdWQiOiJjb20uaWJtLm1mcClslmV4cCl6MTQ1MjUxNjczODA
wNSwic2NvcGUiOiJ4eCJ9.vhjSkv5GShCpcDSu1XCp1FlgSpMHZa-fcJd3iB4JR-xr_3HOK54c36ed_U5s3rvX
Viao5E4HQUZ7PIEOI23bR0RGT2bMGJHiU7c0lyrMV5YE9FdMxqZ5MKHvRnSOeWlt2Vc2izh0pMMTZd-oL-
0w1T8e-F968vycyXeMs4UAbp5Dr2C3DcXCzG_h9jujsNNxgXL5mKJem8EpZPolQ9Rgy2bqt45D06QTW7J9
Q9GXXt1XrkZ9bGpL-HgE2ihYeHBygFI180M8O56By5KHwfSvGDJ8BMdasHFfGDRZUtC_yz64mH1IVxz5o0v
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.

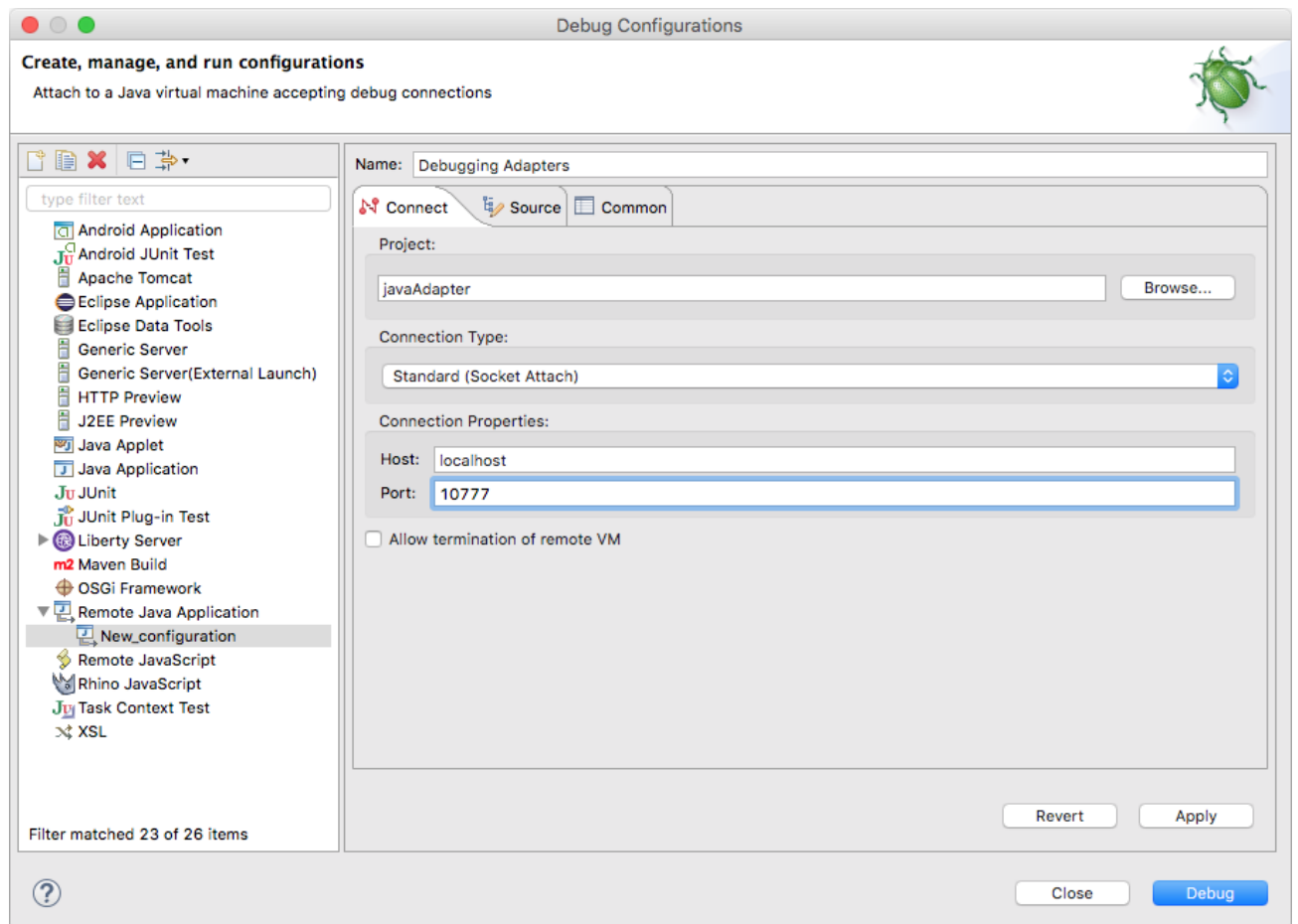
## Debugging Adapters in Eclipse

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](#)).

