

# Creating Java and JavaScript Adapters

## Overview

This tutorial demonstrates how to create either Java or JavaScript adapter using the Maven Archetype "adapter-maven-archetype". The "adapter-maven-archetype" is based on the Maven archetype toolkit (<https://maven.apache.org/guides/introduction/introduction-to-archetypes.html>) in order to create the adapter as a Maven project.

**Prerequisite:** Make sure that you read the Adapters Overview (./adapters-overview) tutorial first.

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## Creating Adapters Using Maven Archetype "adapter-maven-archetype"

The "adapter-maven-archetype" is based on the Maven archetype toolkit (<https://maven.apache.org/guides/introduction/introduction-to-archetypes.html>) in order to create the adapter as a Maven project.

### Install Maven

In order to create an adapter, you first need to download and install Maven. Go to the Apache Maven website (<https://maven.apache.org/>) and follow the instructions how to download and install Maven.

### Create an Adapter

To create a Maven adapter project, use the `archetype:generate` command. You can choose to run the command interactively or directly.

#### In Interactive Mode

1. Run:

```
mvn archetype:generate -DarchetypeGroupId=com.ibm.mfp -DarchetypeArtifactId=<adapter type artifact ID> -DarchetypeVersion=8.0.0
```

- The Archetype Group Id and Archetype Version are required parameters to identify the archetype.
- The Archetype Artifact Id is a required parameter to identify the adapter type:

- Use `adapter-maven-archetype-java` to create a Java adapter
- Use `adapter-maven-archetype-http` to create a JavaScript HTTP adapter
- Use `adapter-maven-archetype-sql` to create a JavaScript SQL adapter

2. Enter the Group Id of the Maven project to be build:

Define value **for** property 'groupId': : com.mfp

3. Enter the Artifact Id of the Maven project **which will later be used also as the adapter name** :

Define value **for** property 'artifactId': : SampleAdapter

4. Enter the Maven project version (the default is 1.0-SNAPSHOT):

Define value **for** property 'version': 1.0-SNAPSHOT: : 1.0

5. Enter the Java adapter package name (the default is the groupId):

Define value **for** property 'package': com.mfp: : com.sample

6. Enter y to confirm:

```
[INFO] Using property: archetypeVersion = 7.2.0.0
Confirm properties configuration:
groupId: sample.group.id
artifactId: Sample
version: 1.0
package: com.sample.adapter
adapter-name: TestAdapter
archetypeVersion: 7.2.0.0
Y: : y
```

## In Direct Mode

Replace the placeholders with the actual values and run:

```
mvn archetype:generate -DarchetypeGroupId=com.ibm.mfp -DarchetypeArtifactId=<adapter type artifact ID> -DarchetypeVersion=8.0.0 -DgroupId=<maven_project_group id> -DartifactId=<maven_project_artifactid> -Dversion=<maven_project_version> -Dpackage=<java_adapter_package_name>
```

For more information about the `archetype:generate` command see the [Maven documentation](#).

After creating the adapter the result will be a Maven project containing a `src` folder and a `pom.xml` file:



## Build and Deploy Adapters

### Build

The adapter will be built every time you run the `mvn install` command to build your Maven project. The end result is the `.adapter` file in the project `target` folder:



### Deploy

1. The `pom.xml` file contains the following properties parameters:

```
<properties>
  <!-- parameters for deploy mfpf adapter -->
  <mfpfUrl>http://localhost:9080/mfpadmin</mfpfUrl>
  <mfpfUser>demo</mfpfUser>
  <mfpfPassword>demo</mfpfPassword>
</properties>
```

- Replace the IP and PORT with your MobileFirst Server IP and port.
  - Replace the mfpfUser and mfpfPassword with your MobileFirst admin user name and password.
2. Open the project's root folder in terminal and run the mvn:adapter command:

```
mvn adapter:deploy
```

**NOTE:** The deploy command is available only during development (for security reasons).

## Dependencies

In order to use an external library in your adapter, follow these suggested instructions:

1. Add a lib folder under the root Maven project folder and put the external library in it.
2. Add the library path under the dependencies element in the Maven project pom.xml file.

For example:

```
<dependency>
  <groupId>sample</groupId>
  <artifactId>com.sample</artifactId>
  <version>1.0</version>
  <scope>system</scope>
  <systemPath>${project.basedir}/lib/</systemPath>
</dependency>
```

For more information about dependencies see the Maven documentation.

## Grouping Adapters in a Single Maven Project

If you have several adapters in your project you may want to arrange them under a single Maven project. Grouping adapters provides many benefits such as build all and deploy all abilities, sharing dependencies etc.

To group adapters you need to:

1. Create a root folder and call it, for example, "GroupAdapters".
2. Put the Maven adapter projects in it.
3. Create a pom.xml file:

```

<project xmlns="http://maven.apache.org/POM/4.0.0" xmlns:xsi="http://www.w
3.org/2001/XMLSchema-instance"
    xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 http://maven.apa
che.org/xsd/maven-4.0.0.xsd">

    <modelVersion>4.0.0</modelVersion>
    <groupId>com.sample</groupId>
    <artifactId>GroupAdapters</artifactId>
    <version>1.0-SNAPSHOT</version>
    <packaging>pom</packaging>

    <modules>
        <module>Adapter1</module>
        <module>Adapter2</module>
    </modules>

    <properties>
        <!-- parameters for deploy mfpf adapter -->
        <mfpfUrl>http://localhost:9080/mfpadmin</mfpfUrl>
        <mfpfUser>demo</mfpfUser>
        <mfpfPassword>demo</mfpfPassword>
    </properties>

    <build>
        <plugins>
            <plugin>
                <groupId>com.ibm.mfp</groupId>
                <artifactId>adapter-maven-plugin</artifactId>
                <version>8.0.0</version>
                <extensions>true</extensions>
            </plugin>
        </plugins>
    </build>

</project>

```

1. Define a **groupId** element of your choice
  2. Add an **artifactId** element - the root folder's name
  3. Add a **module** element for each adapter
  4. Add the **build** element
  5. Replace the **IP** and **PORT** with your MobileFirst Server IP and port.
  6. Replace the **mfpfUser** and **mfpfPassword** with your MobileFirst admin user name and password.
4. To build or deploy all adapters, run the commands from the root "GroupAdapters" project.

## Creating Adapters Using MobileFirst CLI

## Creating Adapters Using MobileFirst Operations Console

- **Using the MobileFirst Operations Console:**

1. Open your browser of choice and load the MobileFirst Operations Console using the address `http://<IP>:<PORT>/mfpconsole/`.
2. Drag and drop the `.adapter` file from the target folder into the Console.