# Invoking adapter procedures from native Android applications

To create and configure an Android native project, first follow the “Creating your first Native Android MobileFirst application (../../hello-world/creating-first-native-android-mobilefirst-application/)” tutorial.

## Overview

MobileFirst applications can adapt procedures to communicate with any data source. This tutorial explains how to use the REST API for returning data from an HTTP adapter. The same can be applied using other data sources (such as SQL adapters, etc).

## Initializing WLClient

1. Create an instance of the `WLClient` class.
   The `WLClient` instance requires a reference to the activity in which it is running.

   ```
   WLClient client = WLClient.createInstance(context);
   ```

2. To establish a connection to the MobileFirst Server instance, use the `connect` method by specifying the `MyConnectListener` class instance as a parameter.
   The `WLClient` instance tries to connect to the MobileFirst Server according to the properties of the `wlclient.properties` file.
   After the connection is established, it invokes one of the methods of the `MyConnectListener` class.
3. Specify that the `MyConnectListener` class implements the `WLResponseListener` interface.

   ```
   public class MyConnectListener implements WLResponseListener {
   ```

   The `WLResponseListener` interface defines two methods:
   - `public void onSuccess (WLResponse response) { }`
   - `public void onFailure (WLFailResponse response) { }`
4. Use these methods to process connection success or connection failure.

## Invoking an adapter procedure

After the connection is established with a MobileFirst Server instance, you can use the `WLResourceRequest` class to invoke adapter procedures or call any REST resources.

1. Define the URI of the resource. For a JavaScript HTTP adapter: `/adapters/{AdapterName}/{ProcedureName}`

   ```
   URI adapterPath = new URI("/adapters/RSSReader/getStoriesFiltered");
   ```

2. Create a `WLResourceRequest` object and choose the HTPP Method (GET, POST, etc).

   ```
   WLResourceRequest request = new WLResourceRequest(adapterPath,WLResourceRequest.GET);
   ```

3. Add the required parameters.
   - For JavaScript-based adapters, use the `params` parameter name to set an array of parameters.

```
request.setQueryParameter("params","['technology']");
```

- For Java adapters or other resources, you can use `setQueryParameter` for each parameter.

```
request.setQueryParameter("param1","value1");
request.setQueryParameter("param2","value2");
```

- Trigger the request with `.send()`.
  Specify a `MyInvokeListener` class instance as a parameter.
  You learn how to define this class instance in the next section.

```
request.send(new MyInvokeListener());
```

Other signatures, which are not covered in this tutorial, exist for the `send` method. Those will enable you to set parameters in the body instead of the query, or handle the response with a delegate instead of a completion handler. See the user documentation to learn more.

## Receiving a procedure response

After the procedure invocation is completed, the framework calls one of the methods of the `MyInvokeListener` class.

1. Specify that the `MyInvokeListener` class implements the `WLResponseListener` interface.

```
public class MyInvokeListener implements WLResponseListener {
```

   The `WLClient` instance invokes the `onSuccess` and `onFailure` methods.
   If the procedure invocation is successful, the `onSuccess` method of `MyInvokeListener` is invoked.
2. Use that method to get the data that is retrieved from the adapter. The `response` object contains the response data. You can use its methods and properties to retrieve the required information.

```
public void onSuccess(WLResponse response) {
   String responseText = response.getResponseText();
   AndroidNativeApp.updateTextView("Adapter Procedure Invoked Successfuly\n" + responseText)
;
}

public void onFailure(WLFailResponse response) {
    String responseText = response.getResponseText();
    AndroidNativeApp.updateTextView("Failed to Invoke Adapter Procedure\n" + responseText);
}
```

## Sample application

Click to download (http://public.dhe.ibm.com/software/products/en/MobileFirstPlatform/docs/v700/InvokingAdapterProceduresNativeProject.zip) the Studio project.
Click to download (http://public.dhe.ibm.com/software/products/en/MobileFirstPlatform/docs/v700/InvokingAdapterProceduresAndroidProject.zip) the Native project.

The sample is made up of two projects:
– The InvokingAdapterProceduresNativeProject.zip.zip file contains a MobileFirst Native API to deploy to your MobileFirst Server instance.

– The InvokingAdapterProceduresAndroidProject.zip file contains a native Android application that uses a MobileFirst native API library to communicate with MobileFirst Server.

Make sure to update the wlclient.properties file in the native Android project with the required server settings.