

# Custom Authentication in native Android applications

## Overview

This tutorial explains how to implement the client side of a custom authentication in native Android.

**Prerequisite:** Make sure that you read the Custom Authentication (../) tutorial first.

## Implementing the client-side authentication

- Create a native Android application and add the MobileFirst native APIs as explained in the Configuring a native Android application with the MobileFirst Platform SDK (../hello-world/configuring-a-native-android-application-with-the-mfp-sdk/) tutorial.
- Add an activity which handles and presents a login form.



## Challenge Handler

- Create a `MyChallengeHandler` class as a subclass of `ChallengeHandler`.

```
public class AndroidChallengeHandler extends ChallengeHandler
```

- Call the `super` method:

```
public AndroidChallengeHandler(String realm) {  
    super(realm);  
}
```

- Add an implementation of the following `ChallengeHandler` methods to handle the form-based

challenge:

1. **isCustomResponse** method:

The **isCustomResponse** method is invoked each time a response is received from the MobileFirst Server. It is used to detect whether the response contains data that is related to this challenge handler. It must return either **true** or **false**.

```
public boolean isCustomResponse(WLResponse response) {
    if (response == null || response.getResponseJSON() == null) {
        return false;
    }
    if(response.toString().indexOf("authStatus") > -1){
        return true;
    }
    else{
        return false;
    }
}
```

2. **handleChallenge** method:

If **isCustomResponse** returns **true**, the framework calls the **handleChallenge** method. This function is used to perform required actions, such as hiding the application screen and showing the login screen.

```
public void handleChallenge(WLResponse response){
    try {
        if(response.getResponseJSON().getString("authStatus") == "complete"){
            submitSuccess(response);
        }
        else {
            cachedResponse = response;
            Intent login = new Intent(parentActivity, LoginCustomLoginModule.class)
;
            parentActivity.startActivityForResult(login, 1);
        }
    } catch (JSONException e) {
        e.printStackTrace();
    }
}
```

3. **onSuccess** and **onFailure** methods:

At the end of the authentication flow, **onSuccess** or **onFailure** will be triggered. Call the **submitSuccess** method in order to inform the framework that the authentication process completed successfully and for the **onSuccess** handler of the invocation to be called. Call the **submitFailure** method in order to inform the framework that the authentication process failed and for the **onFailure** handler of the invocation to be called.

```

public void onFailure(WLFailResponse response) {
    submitFailure(response);
}
public void onSuccess(WLResponse response) {
    submitSuccess(response);
}

```

## submitLoginForm

When the user taps to submit the credentials, call the `submitLoginForm` method to send the the credentials to the MobileFirst Server.

For example, in here we implemented a `submitLogin` method that called by the MainActivity after the login process is completed.

```

public void submitLogin(int resultCode, String userName, String password, boolean back){
    if (resultCode != Activity.RESULT_OK || back) {
        submitFailure(cachedResponse);
    } else {
        HashMap<String, String> params = new HashMap<String, String>();
        params.put("username", userName);
        params.put("password", password);
        submitLoginForm("/my_custom_auth_request_url", params, null, 0, "post");
    }
}

```

## The Main Activity

In the sample project, in order to trigger the challenge handler we use the `WLClient invokeProcedure` method.

The protected procedure invocation triggers MobileFirst Server to send the challenge.

- Create a `WLClient` instance and use the `connect` method to connect to the MobileFirst Server:

```

final WLClient client = WLClient.createInstance(this);
client.connect(new MyConnectionListener());

```

- In order to listen to incoming challenges, make sure to register the challenge handler by using the `registerChallengeHandler` method:

```

challengeHandler = new AndroidChallengeHandler(this, realm);
client.registerChallengeHandler(challengeHandler);

```

- Invoke the protected adapter procedure:

```
URI adapterPath = new URI("/adapters/AuthAdapter/getSecretData");
WLResourceRequest request = new WLResourceRequest(adapterPath,WLResourceRequest.GET);
request.send(new MyResponseListener());
```

## Worklight Protocol

If your custom authenticator uses `WorklightProtocolAuthenticator`, some simplifications can be made:

- Subclass your challenge handler using `WLChallengeHandler` instead of `ChallengeHandler`. Note the `WL`.
- You no longer need to implement `isCustomResponse` as the challenge handler will automatically check that the realm name matches.
- `handleChallenge` will receive the challenge as a parameter, not the entire response object.
- Instead of `submitLoginForm`, use `submitChallengeAnswer` to send your challenge response as a JSON.
- There is no need to call `submitSuccess` or `submitFailure` as the framework will do it for you.

For an example that uses `WorklightProtocolAuthenticator`, see the Remember Me ([../../advanced-topics/remember-me/](https://github.com/MobileFirst-Platform-Developer-Center/CustomAuth/tree/release71)) tutorial or this video blog post ([file:///home/travis/build/MFPSamples/DevCenter/\\_site/blog/2015/05/29/ibm-mobilefirst-platform-foundation-custom-authenticators-and-login-modules/](https://www.ibm.com/developerworks/mobilefirst/2015/05/29/ibm-mobilefirst-platform-foundation-custom-authenticators-and-login-modules/)).

## Sample application

Click to download (<https://github.com/MobileFirst-Platform-Developer-Center/CustomAuth/tree/release71>) the MobileFirst project.

Click to download (<https://github.com/MobileFirst-Platform-Developer-Center/CustomAuthAndroid/tree/release71>) the Native project.

- The `CustomAuth` project contains a MobileFirst native API that you can deploy to your MobileFirst server.
- The `CustomAuthAndroid` project contains a native Android application that uses a MobileFirst native API library.
- Make sure to update the `worklight.plist` file in the native project with the relevant server settings.

