

# Custom Authentication in native iOS applications

## Overview

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

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

## Implementing client-side authentication

Create a native iOS application and add the MobileFirst native APIs as explained in the Configuring a native iOS application with the MobileFirst Platform SDK (../hello-world/configuring-a-native-ios-application-with-the-mfp-sdk/) tutorial.

## Storyboard

In your storyboard, add a ViewController that contains a login form.



## Challenge handler

1. Create a MyChallengeHandler class as a subclass of ChallengeHandler.

```
@interface MyChallengeHandler : ChallengeHandler
```

2. Call the initWithRealm method:

#### @implementation MyChallengeHandler

//...

```
-(id)init{
    self = [self initWithRealm:@"CustomAuthenticatorRealm"];
;
    return self;
}=
```

3. Add the implementation of the following ChallengeHandler methods to handle the custom authenticator and login module 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`.

```
-(BOOL) isCustomResponse:(WLResponse *)response {
    if(response &&& [response getResponseJson]){
        if ([[response getResponseJson] objectForKey:@"authStatus"]) {
            NSString* authRequired = (NSString*) [[response getResponseJson] objectForKey:@"authStatus"];
            return ([authRequired compare:@"required"] == NSOrderedSame);
        }
    }
    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.

```
-(void) handleChallenge:(WLResponse *)response {
    NSLog(@"A login form should appear");
    LoginViewController* loginController = [self.vc.storyboard instantiateViewController
    WithIdentifier:@"LoginViewController"];
    loginController.challengeHandler = self;
    [self.vc.navigationController pushViewController:loginController animated:YES];
}
```

3. **onSuccess and onFailure methods:**

At the end of the authentication flow, calls to the `onSuccess` or `onFailure` methods are triggered.

- Call the `submitSuccess` method to inform the framework that the authentication process completed successfully, so that the `onSuccess` handler of the invocation is called.

- Call the `submitFailure` method to inform the framework that the authentication process failed, so that the `onFailure` handler of the invocation is called.

```

-(void) onSuccess:(WLResponse *)response {
    NSLog(@"Challenge succeeded");
    [self.vc.navigationController popViewControllerAnimated:YES]
;
    [self submitSuccess:response];
}
-(void) onFailure:(WLFailResponse *)response {
    NSLog(@"Challenge failed");
    [self submitFailure:response];
}

```

## submitLoginForm

In your login View Controller, when the user types to submit the credentials, call the `submitLoginForm` method to send the credentials to the MobileFirst Server.

```

@implementation LoginViewController
//...
- (IBAction)login:(id)sender {
    [self.challengeHandler
        submitLoginForm:@"my_custom_auth_request_url"
        requestParameters::@{@"username": self.username.text, @"password": self.password.text}
    ]
    requestHeaders:nil
    requestTimeoutInMilliseconds:0
    requestMethod:@"POST"];
}

```

## The Main ViewController

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:

```

MyConnectListener *connectListener = [[MyConnectListener alloc] init];
[[WLClient sharedInstance] wlConnectWithDelegate:connectListener]
;

```

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

```
[[WLClient sharedInstance] registerChallengeHandler:[[MyChallengeHandler alloc] initWithViewController:self] ];<br />
```

- Invoke the protected adapter procedure:

```
NSURL* url = [NSURL URLWithString:@"./adapters/AuthAdapter/getSecretData"];
WLResourceRequest* request = [WLResourceRequest requestWithURL:url method:WLHttpMethodGet];
[request sendWithCompletionHandler:^(WLResponse *response, NSError *error) {
    ...
}];
```

## Worklight Protocol

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

- You can subclass your challenge handler by using `WLChallengeHandler` instead of `ChallengeHandler`. Note the `WL`.
- You no longer need to implement `isCustomResponse` because the challenge handler automatically checks that the realm name matches.
- The `handleChallenge` method receives the challenge as a parameter, not the entire response object.
- Instead of `submitLoginForm`, use `submitChallengeAnswer` to send your challenge response as a JSON object.
- You do not need to call `submitSuccess` or `submitFailure` because the framework will do it for you.

For an example that uses `WorklightProtocolAuthenticator`, see the Remember Me ([../.../advanced-topics/remember-me/](#)) 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/](#)).

## Sample application

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

Click to download (<https://github.com/MobileFirst-Platform-Developer-Center/CustomAuthObjC>) the Objective-C project.

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

- The `CustomAuth` project contains a MobileFirst native API that you can deploy to your MobileFirst server.
- The `CustomAuthObjC` and `CustomAuthSwift` projects contains a native iOS 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.

