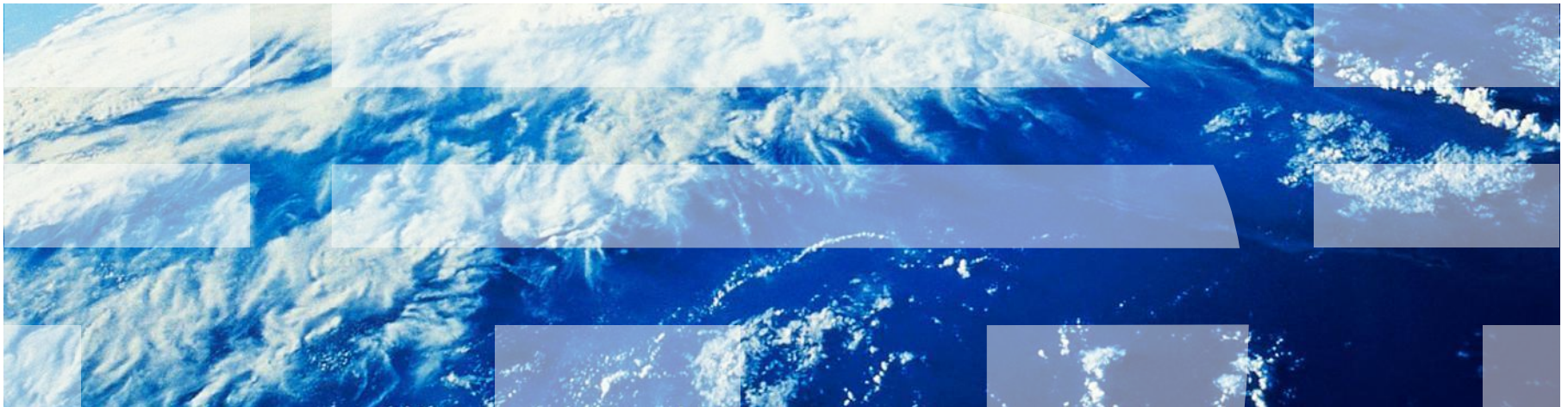


IBM Worklight Foundation V6.2.0 Getting Started

Adapter-based authentication in native iOS applications



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Agenda

- Introduction to adapter-based authentication
- Configuring the authenticationConfig.xml file
- Creating the server-side authentication components
- Creating the client-side authentication components
- Examining the result
- Exercise

Introduction to adapter-based authentication

- Adapter-based authentication is the most flexible type of authentication to implement and contains all the benefits of the Worklight® Server authentication framework.
- When you use adapter-based authentication, you can implement the entire authentication logic, including validation of the credentials, in an adapter by using plain JavaScript™.
- Nevertheless, you can also use any login module as an extra authentication layer.
- In this module, you implement an adapter-based authentication mechanism that relies on a user name and a password.

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Configuring the authenticationConfig.xml file (1 of 4)

- Add an authentication realm to the `<realms>` section of the **authenticationConfig.xml** file.

```
<realm loginModule="AuthLoginModule" name="NativeAdapterBasedAuthRealm">
  <className>
    com.worklight.integration.auth.AdapterAuthenticator
  </className>
  <parameter name="login-function"
    value="NativeAdapterBasedAdapter.onAuthRequired"/>
  <parameter name="logout-function"
    value="NativeAdapterBasedAdapter.onLogout"/>
</realm>
```

- This realm uses the `AuthLoginModule` login module, which is defined later.
- Using the `com.worklight.integration.auth.AdapterAuthenticator` class means that the server-side part of the authenticator is defined in the adapter.

Configuring the authenticationConfig.xml file (2 of 4)

```
<parameter name="login-function"  
value="NativeAdapterBasedAdapter.onAuthRequired"/>  
  
<parameter name="logout-function"  
value="NativeAdapterBasedAdapter.onLogout"/>
```

- Whenever the Worklight authentication framework detects an attempt to access a protected resource, an adapter function that is defined in a **login-function parameter** is called automatically.
- When logout is detected (explicit or session timeout), a **logout-function** is called automatically.
- In both cases, the parameter value syntax is `adapterName.functionName`.

Configuring the authenticationConfig.xml file (3 of 4)

- Add a login module to the `<loginModules>` section of the **authenticationConfig.xml** file and call it `AuthLoginModule`.

```
<loginModule name="AuthLoginModule">  
  <className>com.worklight.core.auth.ext.NonValidatingLoginModule</className>  
</loginModule>
```

- Using a `NonValidatingLoginModule` class name means that no additional validation is performed by the Worklight platform, and the developer takes responsibility for the validation of credentials within the adapter.
- Because all authentication-related actions are done in the adapter code, using `NonValidatingLoginModule` is mandatory for adapter-based authentication.

Configuring the authenticationConfig.xml file (4 of 4)

- Add a security test to the `<securityTests>` section of the **authenticationConfig.xml** file.
- You must use this security test to protect the adapter procedure, so use the `<customSecurityTest>` element.

```
<customSecurityTest name="NativeAdapterBasedSecurityTest">  
    <test isInternalUserID="true" realm="NativeAdapterBasedAuthRealm"/>  
</customSecurityTest>
```

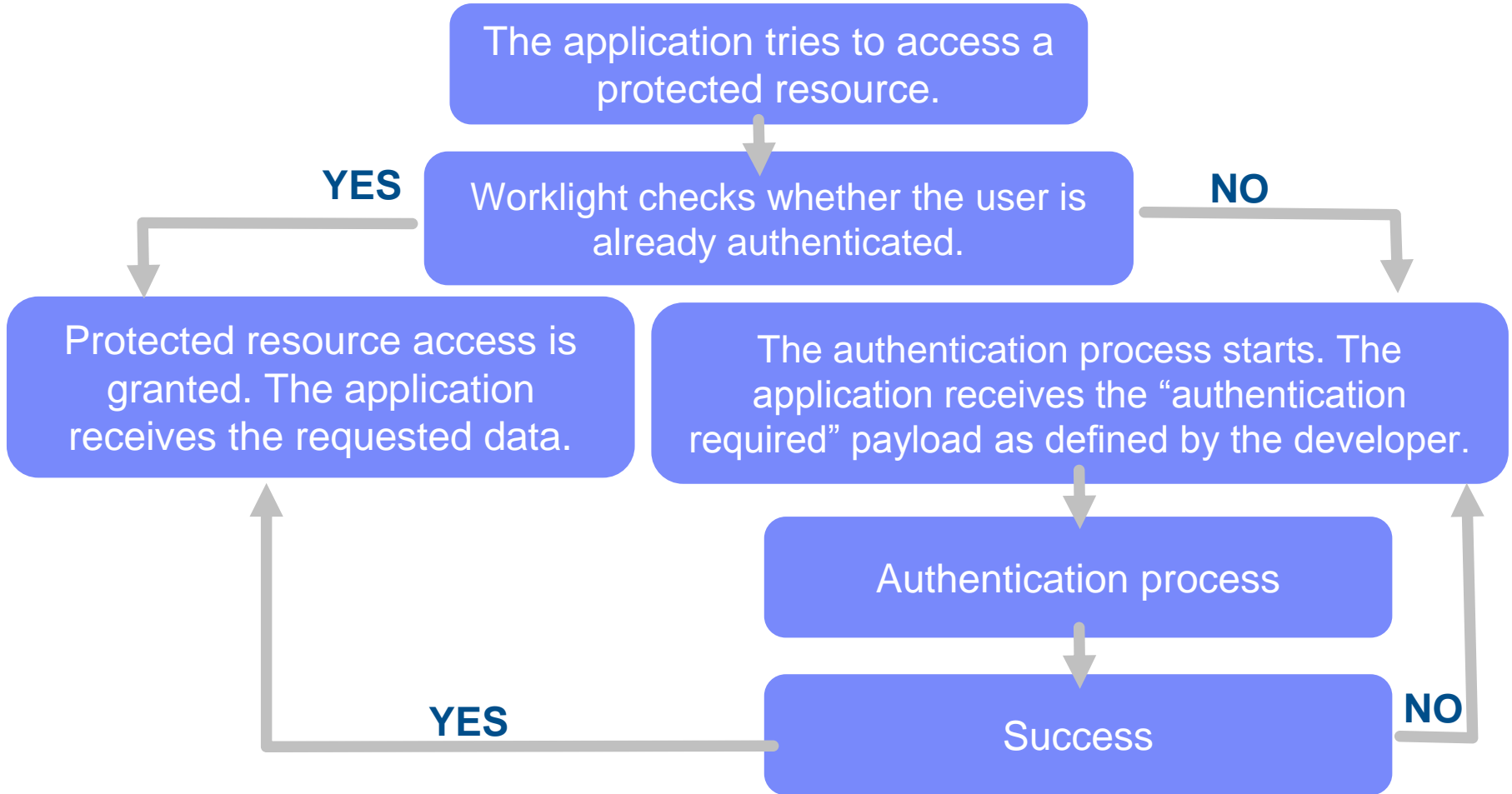
- Remember the security test name; you use it in subsequent steps.

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Creating the server-side authentication components (1 of 10)

- The following diagram illustrates the adapter-based authentication process:



Creating the server-side authentication components (2 of 10)

- Create an adapter that takes care of the authentication process. Name it **NativeAdapterBasedAdapter**.
- **NativeAdapterBasedAdapter** includes the following two procedures:

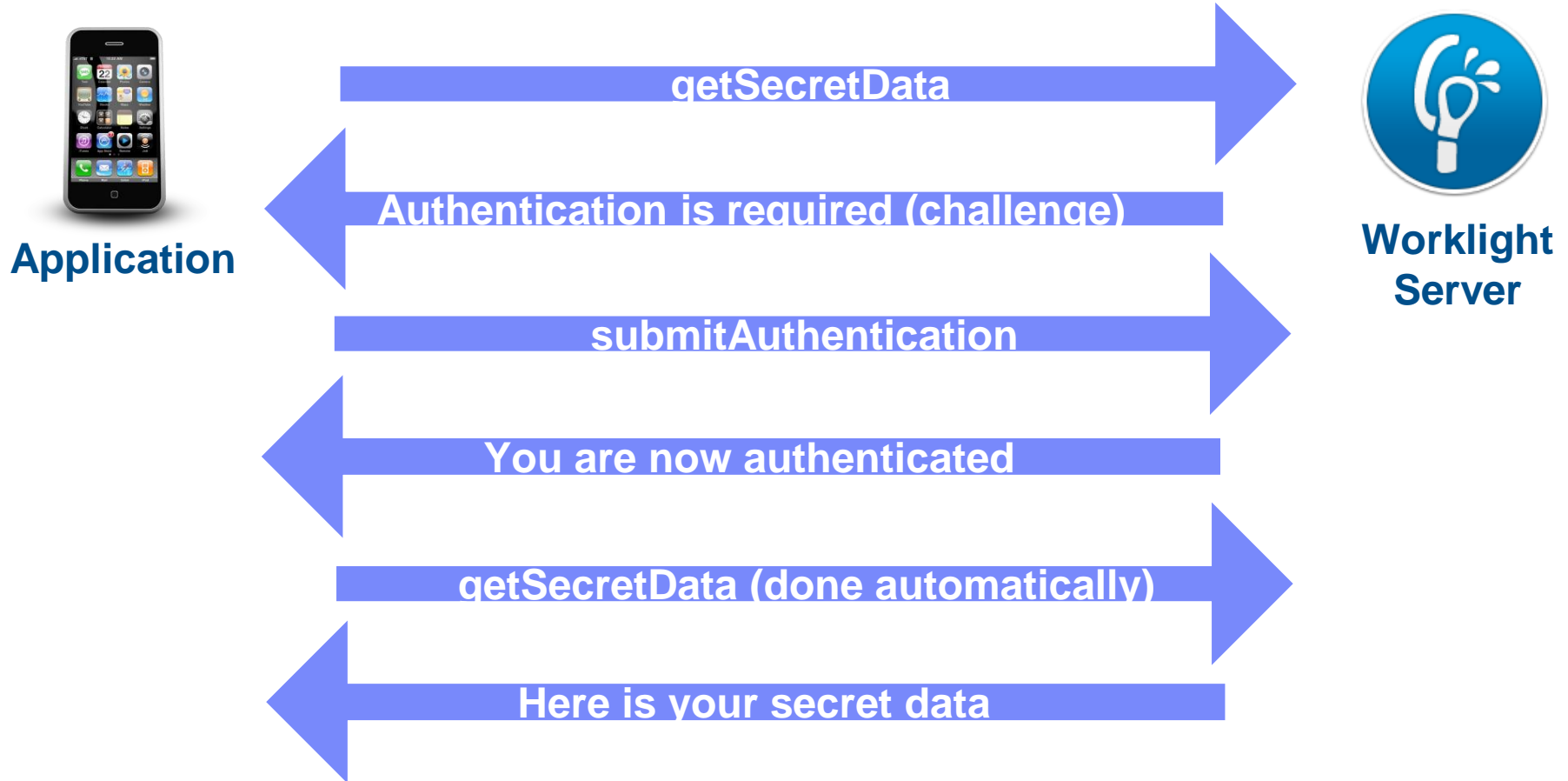
```
<procedure name="submitAuthentication"/>
```

```
<procedure name="getSecretData"  
securityTest="NativeAdapterBasedSecurityTest"/>
```

- The `submitAuthentication` procedure takes care of the authentication process and authentication is not required to call it.
- The second procedure, however, is available to authenticated users only.

Creating the server-side authentication components (3 of 10)

- The following diagram shows the flow to implement:



Creating the server-side authentication components (4 of 10)

- Whenever the Worklight framework detects an unauthenticated attempt to access a protected resource, the `onAuthRequired` function is called, as defined in the **authenticationConfig.xml** file).

```
function onAuthRequired(headers, errorMessage) {  
    errorMessage = errorMessage ? errorMessage : null;  
    return {  
        authRequired: true,  
        errorMessage: errorMessage  
    };  
}
```

This object is a custom challenge object that is sent to the application.

- This function receives the response headers and an optional `errorMessage` parameter. The object that is returned by this function is sent to the client application.
- Note the `authRequired: true` property. You use this property in a challenge handler to detect that the server is requesting authentication.

Creating the server-side authentication components (5 of 10)

- The `submitAuthentication` function is called by a client application to validate the user name and password.

```
function submitAuthentication(username, password){  
    if (username==="worklight" && password === "12345"){  
  
        var userIdentity = {  
            userId: username,  
            displayName: username,  
            attributes: {  
                foo: "bar"  
            }  
        };  
  
        WL.Server.setActiveUser("NativeAdapterBasedAuthRealm", userIdentity);  
  
        return {  
            authRequired: false  
        };  
    }  
  
    return onAuthRequired(null, "Invalid login credentials");  
}
```

The user name and password are received from the application as parameters.

Creating the server-side authentication components (6 of 10)

- The `submitAuthentication` function is called by a client application to validate the user name and password.

```
function submitAuthentication(username, password){  
    if (username==="worklight" && password === "12345"){  
        var userIdentity = {  
            userId: username,  
            displayName: username,  
            attributes: {  
                foo: "bar"  
            }  
        };  
        WL.Server.setActiveUser("NativeAdapterBasedAuthRealm", userIdentity);  
        return {  
            authRequired: false  
        };  
    }  
    return onAuthRequired(null, "Invalid login credentials");  
}
```

In this sample, the credentials are validated against some hardcoded values, but any other validation mode is valid, for example by using SQL or web services.

Creating the server-side authentication components (7 of 10)

- The `submitAuthentication` function is called by a client application to validate the user name and password.

```
function submitAuthentication(username, password){  
    if (username=="worklight" && password === "12345"){  
  
        var userIdentity = {  
            userId: username,  
            displayName: username,  
            attributes: {  
                foo: "bar"  
            }  
        };  
  
        WL.Server.setActiveUser("NativeAdapterBasedAuthRealm", userIdentity);  
  
        return {  
            authRequired: false  
        };  
    }  
    return onAuthRequired(null, "Invalid login credentials");  
}
```

If the validation passes successfully, the `WL.Server.setActiveUser` method is called to create an authenticated session for the realm, with user data stored in a `userIdentity` object. You can add your own custom properties to the user identity attributes.

Creating the server-side authentication components (8 of 10)

- The `submitAuthentication` function is called by a client application to validate the user name and password.

```
function submitAuthentication(username, password){  
  if (username==="worklight" && password === "12345"){  
  
    var userIdentity = {  
      userId: username,  
      displayName: username,  
      attributes: {  
        foo: "bar"  
      }  
    };  
  
    WL.Server.setActiveUser("NativeAdapterBasedAuthRealm", userIdentity);  
  
    return {  
      authRequired: false  
    };  
  }  
  
  return onAuthRequired(null, "Invalid login credentials");  
}
```

An object is sent to the application, stating that the authentication screen is no longer required.

Creating the server-side authentication components (9 of 10)

- The `submitAuthentication` function is called by a client application to validate the user name and password.

```
function submitAuthentication(username, password){  
    if (username==="worklight" && password === "12345"){  
  
        var userIdentity = {  
            userId: username,  
            displayName: username,  
            attributes: {  
                foo: "bar"  
            }  
        };  
  
        WL.Server.setActiveUser("NativeAdapterBasedAuthRealm", userIdentity);  
  
        return {  
            authRequired: false  
        };  
    }  
    return onAuthRequired(null, "Invalid login credentials");  
}
```

If the credentials validation fails, an object that is built by the `onAuthRequired` function is returned to the application with a suitable error message.

Creating the server-side authentication components (10 of 10)

- For training purposes, the `getSecretData` function returns a hardcoded value. Keep in mind that `getSecretData` is protected by a security test, as defined in the adapter XML.
- The `onLogout` function is defined in the **authenticationConfig.xml** file to be called automatically on logout, for example to perform a cleanup.

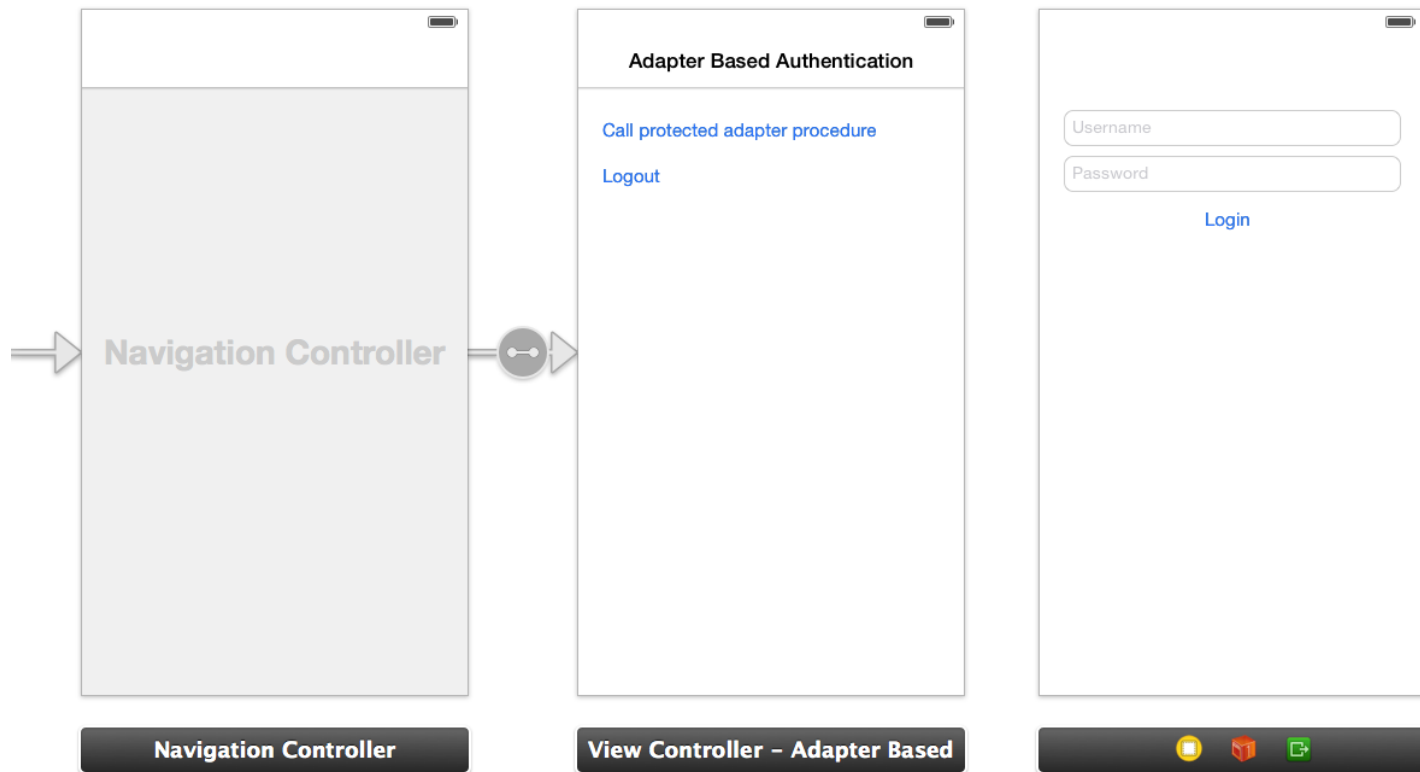
```
0 function getSecretData(){
1     return {
2         secretData: "A very very very very secret data"
3     };
4 }
5
6 function onLogout(){
7     WL.Logger.debug("Logged out");
8 }
9
```

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Creating the client-side authentication components (1 of 7)

- Create a native iOS application and add the Worklight native APIs following the documentation
- In your storyboard, add a ViewController containing a login form.



Creating the client-side authentication components (2 of 7)

- Create a MyChallengeHandler class as a subclass of ChallengeHandler
- Implement some of the ChallengeHandler methods to respond to the form-based challenge.

```
@interface MyChallengeHandler : ChallengeHandler
@property ViewController* vc;

//A convenient way of updating the View
-(id)initWithViewController: (ViewController*) vc;
@end
```

Creating the client-side authentication components (3 of 7)

- Before calling your protected adapter, make sure to register your challenge handler by a call to the `registerChallengeHandler` on the `WLClient` instance.

```
[[WLClient sharedInstance] registerChallengeHandler:[MyChallengeHandler alloc] initWithViewController:self];
```


Creating the client-side authentication components (4 of 7)

- The `isCustomResponse` method of the challenge handler is invoked each time that a response is received from the 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`.

```
@implementation MyChallengeHandler
//...
-(BOOL) isCustomResponse:(WLResponse *)response {
    NSLog(@"Inside isCustomResponse");
    if(response && [response getResponseJson]){
        if ([[response getResponseJson] objectForKey:@"authRequired"]) {
            NSLog(@"Detected adapter auth - return true");
            NSString* authRequired = (NSString*) [[response getResponseJson]
objectForKey:@"authRequired"];
            return [authRequired boolValue]; //return if auth is required
        }
    }
    return false;
}
@end
```

Creating the client-side authentication components (5 of 7)

- 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.

```
@implementation MyChallengeHandler
//...
-(void) handleChallenge:(WLResponse *)response {
    NSLog(@"Inside handleChallenge - need to show form on the screen");
    LoginViewController* loginController = [self.vc.storyboard
    instantiateViewControllerWithIdentifier:@"LoginViewController"];
    loginController.challengeHandler = self;
    [self.vc.navigationController pushViewController:loginController
    animated:YES];
}
@end
```

Creating the client-side authentication components (6 of 7)

- onSuccess and onFailure get triggers when the authentication ends.
- You need to call submitSuccess to inform the framework that the authentication process is over and to allow the invocation's success handler to be called.

```
@implementation MyChallengeHandler
//...
-(void) onSuccess:(WLResponse *)response {
    NSLog(@"inside challenge success");
    [self.vc.navigationController popViewControllerAnimated:YES];
    [self submitSuccess:response];
}

-(void) onFailure:(WLFailResponse *)response {
    NSLog(@"inside challenge failure");
    [self submitFailure:response];
}
```

Creating the client-side authentication components (7 of 7)

- In your LoginViewController, when users click to submit their credentials, you need to call `submitAdapterAuthentication` to send the credentials to the `submitAuthentication` procedure you wrote previously.

```
@implementation LoginViewController
/**
- (IBAction)login:(id)sender {
    WLProcedureInvocationData *myInvocationData = [[WLProcedureInvocationData alloc]
        initWithAdapterName:@"NativeAdapterBasedAdapter"
        procedureName:@"submitAuthentication"];

    myInvocationData.parameters = @[self.username.text, self.password.text];
    [self.challengeHandler submitAdapterAuthentication:myInvocationData options:nil];
}
```

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Examining the result

The image shows three sequential screenshots of an iOS simulator interface for 'Adapter Based Authentication'.

- First Screenshot (11:23 AM):** Shows the main menu with two options: 'Call protected adapter procedure' and 'Logout'.
- Second Screenshot (11:23 AM):** Shows the login form. The first field contains 'worklight' and the second field contains '12345'. A 'Login' button is visible below the fields. A keyboard is shown at the bottom.
- Third Screenshot (11:24 AM):** Shows a modal dialog titled 'Adapter Response' with the following JSON content:


```
/*-secure-
{"isSuccessful":true,"secretData":"A
very very very very secret data","WL-
Authentication-Success":
{"NativeAdapterBasedAuthRealm":
{"userId":"worklight","isUserAuthenti
cated":1,"attributes":
{"foo":"bar"},"displayName":"worklig
ht"}}*/
OK
```

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Exercise

- Implement the adapter authentication as described in this training module.
- You can find the sample for this training module in the **Getting Started** page of the IBM® Worklight® Foundation documentation website at <http://www.ibm.com/mobile-docs>.

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