Implementing the challenge handler in Cordova applications

fork and edit tutorial (https://github.ibm.com/MFPSamples/DevCenter/tree/master/tutorials/en/foundation/8.0/authentication-and-security/security-check-with-attempts/cordova/index.md) | report issue (https://github.ibm.com/MFPSamples/DevCenter/issues/new)

Overview

When trying to access a protected resource, the server (the `SecurityCheck`) will send back to the client a list containing one or more **challenges** for the client to handle.
This list is received as a `JSON object`, listing the `SecurityCheck` name with an optional `JSON` of additional data:

```
{
  "challenges": {
    "SomeSecurityCheck1":null,
    "SomeSecurityCheck2":{
      "some property": "some value"
    }
  }
}
```

The client should then register a **challenge handler** for each `SecurityCheck`.
The challenge handler defines the client-side behavior that is specific to the security check.

Creating the challenge handler

A challenge handler is responsible for handling challenges sent by the MobileFirst server, such as displaying a login screen, collecting credentials and submitting them back to the `SecurityCheck`.

In this example, the `SecurityCheck` is `PinCodeAttempts` which was defined in Implementing Security Check with Attempts Security Adapter (../adapter). The challenge sent by this `SecurityCheck` contains the number of remaining attempts to login (`remainingAttempts`), and an optional `errorMsg`.

Use the `WL.Client.createWLChallengeHandler()` API method to create and register a challenge Handler:

```
PinCodeChallengeHandler = WL.Client.createWLChallengeHandler("PinCodeAttempts");
```

Handling the challenge

The minimum requirement from the `WLChallengeHandler` protocol is to implement the `handleChallenge()` method, that is responsible for asking the user to provide the credentials. The `handleChallenge` method receives the challenge as a `JSON` Object.

> Learn more about the `WLChallengeHandler` protocol in the user documentation.

In this example, a prompt is displayed asking to enter the PIN code:

```
PinCodeChallengeHandler.handleChallenge = function(challenge) {
    var msg = "";

    // Create the title string for the prompt
    if(challenge.errorMsg != null) {
        msg =  challenge.errorMsg + "\n";
    } else {
        msg = "This data requires a PIN code.\n";
    }

    msg += "Remaining attempts: " + challenge.remainingAttempts;

    // Display a prompt for user to enter the pin code
    var pinCode = prompt(msg, "");

    if(pinCode){ // calling submitChallengeAnswer with the entered value
        PinCodeChallengeHandler.submitChallengeAnswer({"pin":pinCode});
    } else { // calling submitFailure in case user pressed the cancel button
        PinCodeChallengeHandler.submitFailure();
    }
};
```

If the credentials are incorrect, you can expect the framework to call `handleChallenge` again.

Submitting the challenge's answer

Once the credentials have been collected from the UI, use `WLChallengeHandler`'s `submitChallengeAnswer()` to send an answer back to the `SecurityCheck`. In this example `PinCodeAttempts` expects a property called `pin` containing the submitted PIN code:

```
PinCodeChallengeHandler.submitChallengeAnswer({"pin":pinCode});
```

Cancelling the challenge

In some cases, such as clicking a "Cancel" button in the UI, you want to tell the framework to discard this challenge completely.
To achieve this, call:

```
PinCodeChallengeHandler.submitFailure();
```

Handling failures

Some scenarios may trigger a failure (such as maximum attempts reached). To handle these, implement `WLChallengeHandler`'s `handleFailure()`.
The structure of the JSON object passed as a parameter greatly depends on the nature of the failure.

```
PinCodeChallengeHandler.handleFailure = function(error) {
    WL.Logger.debug("Challenge Handler Failure!");

    if(error.failure && error.failure == "account blocked") {
        alert("No Remaining Attempts!");
    } else {
        alert("Error! " + JSON.stringify(error));
    }
};
```

Handling successes

In general successes are automatically processed by the framework to allow the rest of the application to continue.

Optionally you can also choose to do something before the framework closes the challenge handler flow, by implementing `WLChallengeHandler`'s `handleSuccess()`. Here again, the content and structure of the `success` JSON object depends on what the `SecurityCheck` sends.

In the `PinCodeAttemptsCordova` sample application, the success does not contain any additional data.

Registering the challenge handler

In order for the challenge handler to listen for the right challenges, you must tell the framework to associate the challenge handler with a specific `SecurityCheck` name.
This is done by creating the challenge handler with the `SecurityCheck` like this:

```
someChallengeHandler = WL.Client.createWLChallengeHandler("the-securityCheck-name");
```

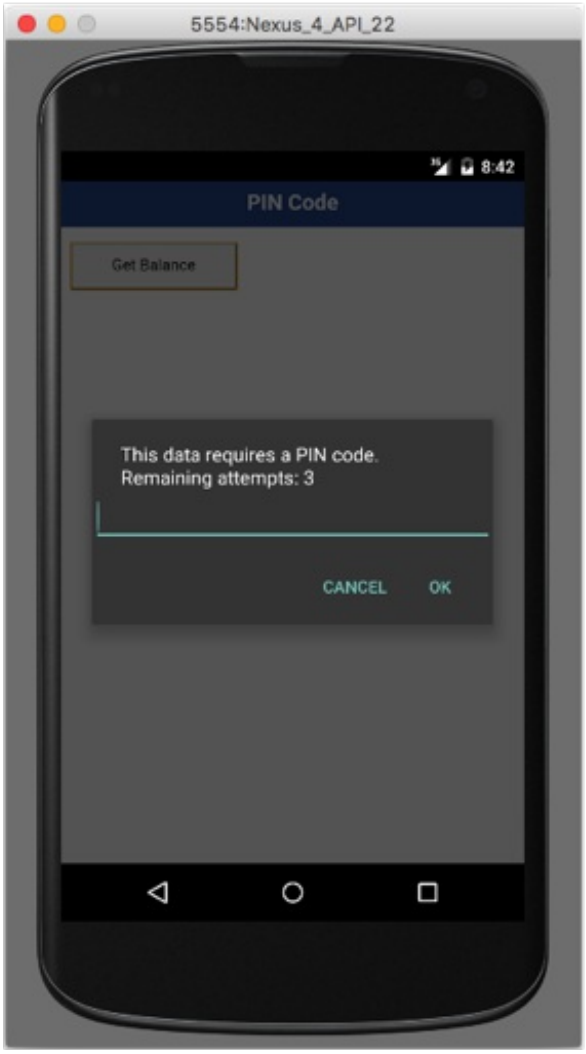
Sample application

The sample **PinCodeCordova** is a Corodova application that uses `WLResourceRequest` to get a bank balance.
The method is protected with a PIN code, with a maximum of 3 attempts.

Click to download (https://github.com/MobileFirst-Platform-Developer-Center/SecurityAdapters/tree/release80) the SecurityAdapters Maven project.
Click to download (https://github.com/MobileFirst-Platform-Developer-Center/PinCodeCordova/tree/release80) the Cordova project.

Sample usage

1. Use either Maven or MobileFirst Developer CLI to build and deploy the available `ResourceAdapter` and `PinCodeAttempts` adapters (../../creating-adapters/).
2. From a command-line window, navigate to the project's root folder and run the command: `mfpdev app register`.
3. In the MobileFirst console, under **Applications → PinCodeCordova → Security → Map scope elements to security checks.**, add a mapping from `accessRestricted` to `PinCodeAttempts`.
4. Back in the command-line:
    - Add a platform by running the `cordova platform add` command.
    - Run the Cordova application by running the `cordova run` command.


5554:Nexus_4_API_22
8:42
PIN Code
Get Balance
This data requires a PIN code.
Remaining attempts: 3
CANCEL
OK

5554:Nexus_4_API_22
8:42
PIN Code
Get Balance
19938.80