Creating a Security Check

Overview

A SecurityCheck is an object responsible for obtaining credentials from a client and validate them.

Security checks are defined inside **an adapter** and are implemented in Java code. Any adapter can theoretically define a SecurityCheck. An adapter can either be a *resource* adapter (meaning it serves resources/content to send to the client), a *SecurityCheck* adapter, or **both**.

Prerequisites: Familiarize yourself with the MobileFirst Platform Foundation authentication framework before continuing.
Read the Authentication concepts (../authentication-concepts/) tutorial.

Jump to:

Defining a SecurityCheck

Create a Java or JavaScript adapter (../../adapters/creating-adapters/) or use an exiting one.

> When creating a Java adapter, the default template assumes the adapter will serve **resources**. It is the developer's choice to bundle Security Checks and resources in the same adapter, or to separate them into distinct adapters. To remove the default **resource** implementation, delete the files **[AdapterName]Application.java** and **[AdapterName]Resource.java**. Remove the `<JAXRSApplicationClass>` element from **adapter.xml** as well.

In the Java adapter's adapter.xml file, add an XML element called `securityCheckDefinition`. For example:

```
<securityCheckDefinition name="sample" class="com.sample.sampleSecurityCheck">
   <property name="successExpirationSec" defaultValue="60"/>
   <property name="failureExpirationSec" defaultValue="60"/>
   <property name="maxAttempts" defaultValue="3"/>
</securityCheckDefinition>
```

- The `name` attribute will be the name of your SecurityCheck.
- The `class` attribute specifies the implementation Java class of the SecurityCheck. You need to create this class.
- Some SecurityChecks can be configured with a list of `property` elements.

SecurityCheck Implementation

Create the security check's **Java class**. The implementation should extend one of the provided base classes, below.
The parent class you choose will determine the balance between customization and simplicity.

SecurityCheck

`SecurityCheck` is a Java **interface**, defining the minimum required methods to represent the server-side state of a security check. Using this interface alone does not provide any implementation code and it is the sole responsibility of the implementor to handle each scenario.

ExternalizableSecurityCheck

This abstract class implements a basic version of the `SecurityCheck` interface.
It provides, among other options: externalization as JSON, inactivity timeout, expiration countdown and more.

Subclassing this class leaves a lot of flexibility in your Security Check implementation.

> Learn more in the `ExternalizableSecurityCheck` user documentation topic.

CredentialsValidation Security Check

This abstract class extends `ExternalizableSecurityCheck` and implements most of its methods to simplify usage. Two methods are required to be implemented: `validateCredentials` and `createChallenge`.

The `CredentialsValidationSecurityCheck` class is meant for simple flows to need to validate arbitrary credentials in order to grant access to a resource. Aslo provided is a built-in capability to block access after a set number of attempts.

> Learn more in the CredentialsValidation security check (../credentials-validation/) tutorials.

UserAuthentication Security Check

This abstract class extends `CredentialsValidationSecurityCheck` and therefore inherits all of its features.

In addition, the `UserAuthenticationSecurityCheck` class provides the MobileFirst framework an `AuthenticatedUser` object which represents the logged-in user. Methods that are required to be implemented are `createUser`, `validateCredentials` and `createChallenge`.

Also provided is a built-in capability to optionally enable a "Remember Me" login behavior.

> Learn more in the UserAuthentication security check (../user-authentication/) tutorials.

Security Check Configuration

Each `SecurityCheck` implementation class can use a `SecurityCheckConfiguration` class that defines properties available for that `SecurityCheck`. Each base `SecurityCheck` class comes with a matching `SecurityCheckConfiguration` class. You can create your own implementation that extends one of the base `SecurityCheckConfiguration` classes and use it for your custom `SecurityCheck`.

For example, `UserAuthenticationSecurityCheck`'s `createConfiguration` method returns an instance of `SecurityCheckWithAuthenticationConfig`.

```
public abstract class SecurityCheckWithUserAuthentication extends SecurityCheckWithAttempts {
    @Override
    public SecurityCheckConfiguration createConfiguration(Properties properties) {
        return new SecurityCheckWithAuthenticationConfig(properties);
    }
}
```

`SecurityCheckWithAuthenticationConfig` enables a property called `rememberMeDurationSec` with a default of `0`.

```
public class SecurityCheckWithAuthenticationConfig extends SecurityCheckWithAttemptsConfig {

    public int rememberMeDurationSec;

    public SecurityCheckWithAuthenticationConfig(Properties properties) {
        super(properties);
        rememberMeDurationSec = getIntProperty("rememberMeDurationSec", properties, 0);
    }

}
```

These properties can be configured at several levels:

adapter.xml

In the Java adapter's adapter.xml file, inside `<securityCheckDefinition>`, you can add one or more `<property>` elements.
The `<property>` element takes the following attributes:

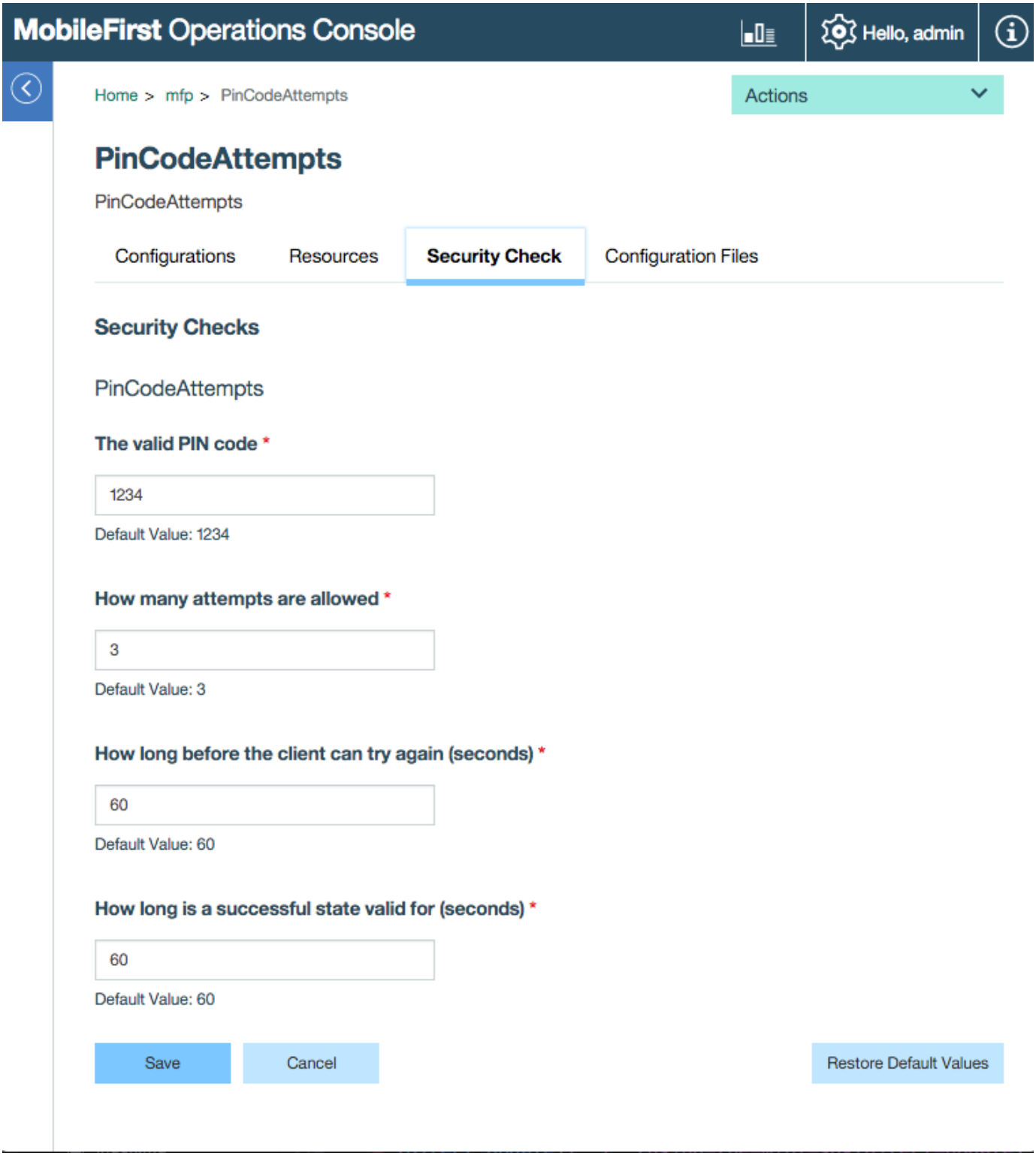
- **name**: The name of the property, as defined in the configuration class.
- **defaultValue**: Overrides the default value defined in the configuration class.
- **displayName**: A friendly name to be displayed in the console.

Example:

```
<property name="maxAttempts" defaultValue="3" displayName="How many attempts are allowed"/>
```

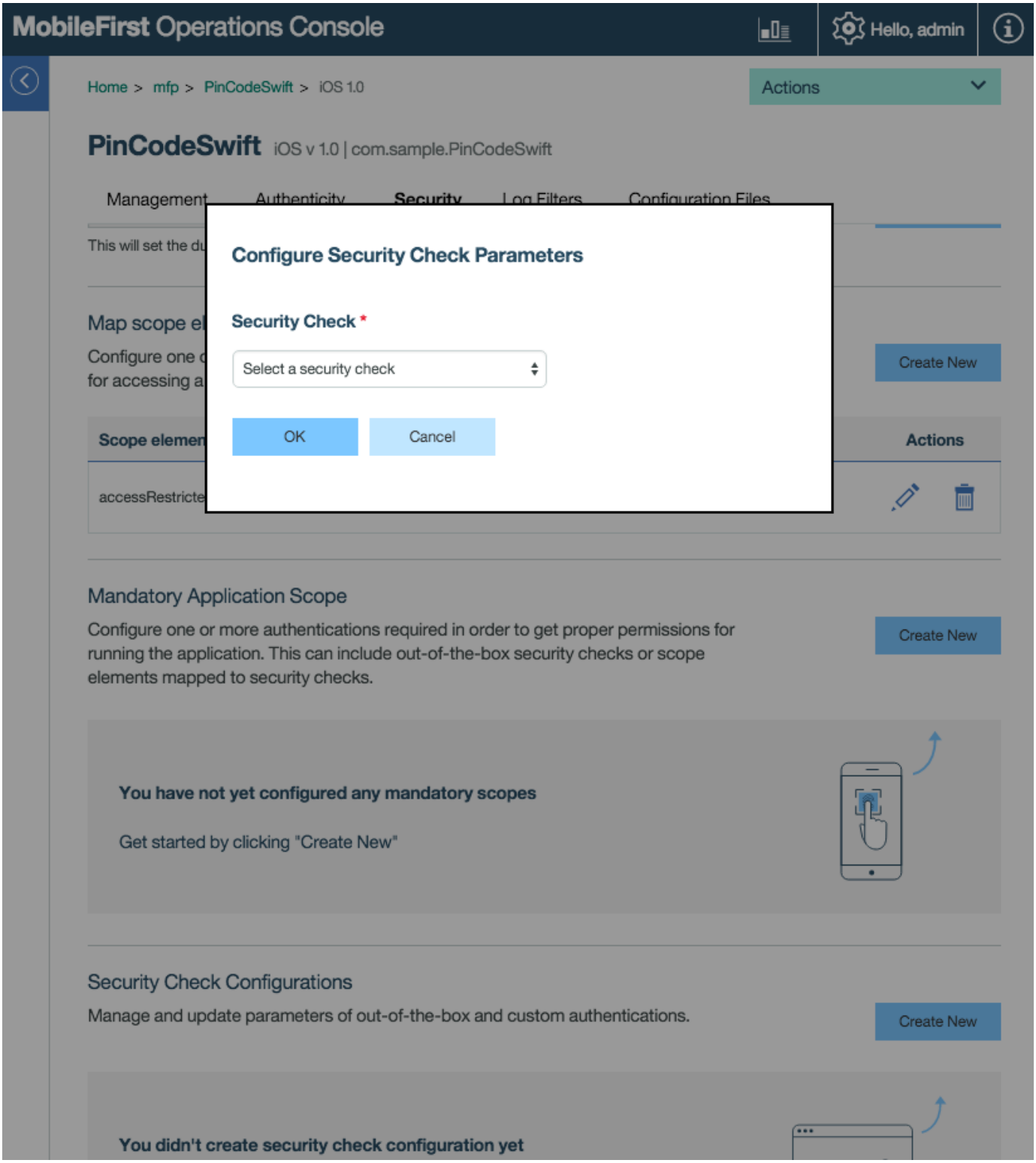
MobileFirst Operations Console - Adapter

In the MobileFirst Console, in the "Security Check" tab of your adapter, you will be able change the value of any property defined in the adapter.xml.
Note that **only** the properties defined in adapter.xml appear on this screen; properties defined in the configuration class won't appear here automatically.



MobileFirst Operations Console - Application

Property values can also be overridden at the application level. In your MobileFirst Console, in the "Security" tab of your application, under the "Security Check Configurations" section, you can modify the values defined in each Security Check available.



Predefined Security Checks

Also available are these predefined security checks:

- Application Authenticity (../application-authenticity/)
- Direct Update (../../using-the-mfpf-sdk/direct-update)
- LTPA

Tutorials to follow next

Continue reading about security checks in the following tutorials.
Remember to deploy your adapter when you're done developing or making changes.

- Implementing the CredentialsValidation Security Check (../credentials-validation/).
- Implementing the UserAuthentication Security Check (../user-authentication/).
- Learn about additional MobileFirst Platform Foundation authentication and security features (../).