Authentication Concepts

Overview

The OAuth 2.0 (http://oauth.net/) protocol is based on the acquisition of an access token, which encapsulates the authorization that is granted to the client. In that context, IBM MobileFirst Platform Server serves as an authorization server and is able to generate such tokens. The client can then use these tokens to access resources on a resource server, which can be either MobileFirst Server itself or an external server. The resource server checks the validity of the token to make sure that the client can be granted access to the requested resource. This separation between resource server and authorization server in the new OAuth-based model allows you to enforce MobileFirst security on resources that are running outside MobileFirst Server.

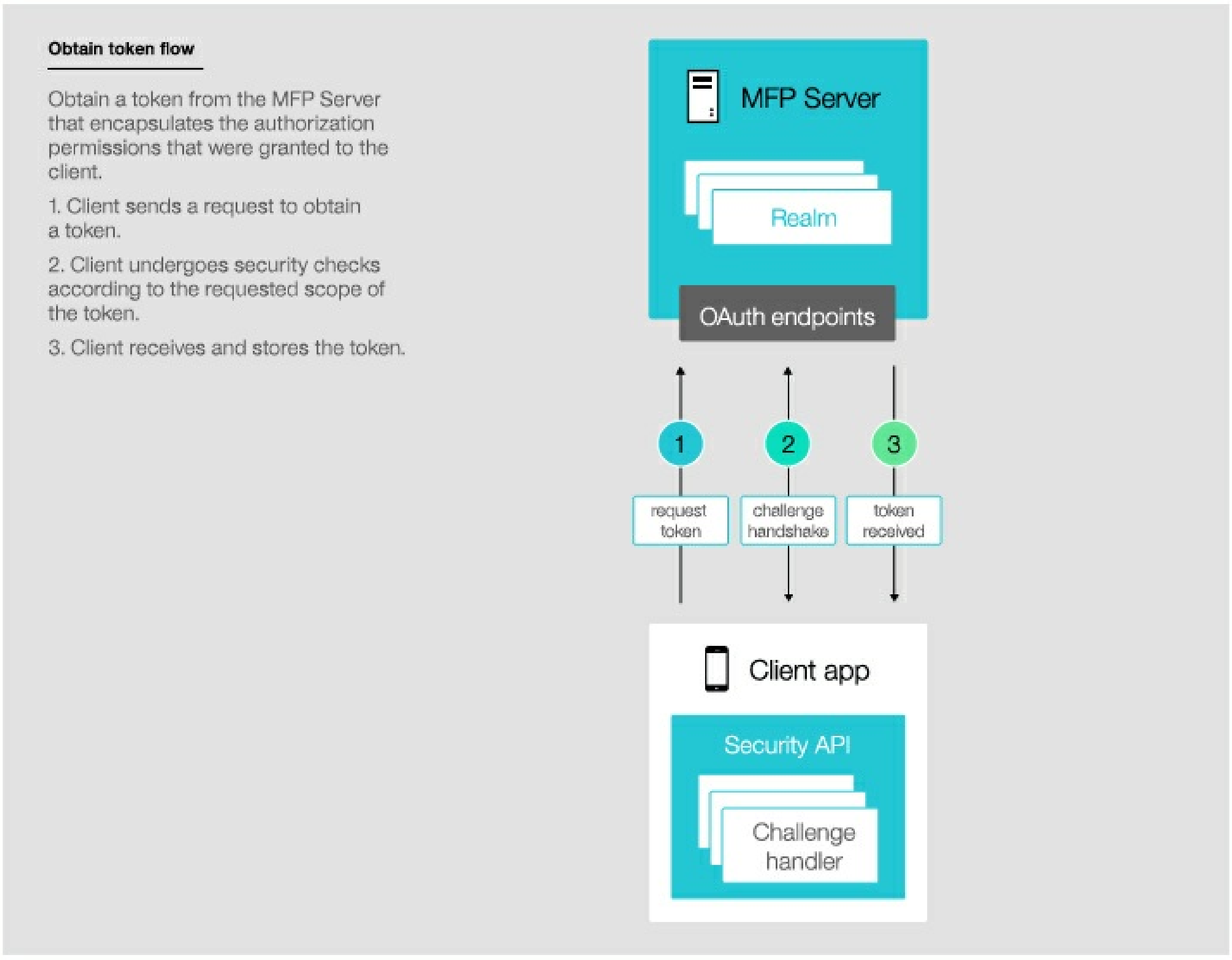
This tutorial covers the following topics:

Authorization flow

The new MobileFirst end-to-end authorization flow has two phases: the client acquires the token and then uses it to access a protected resource.

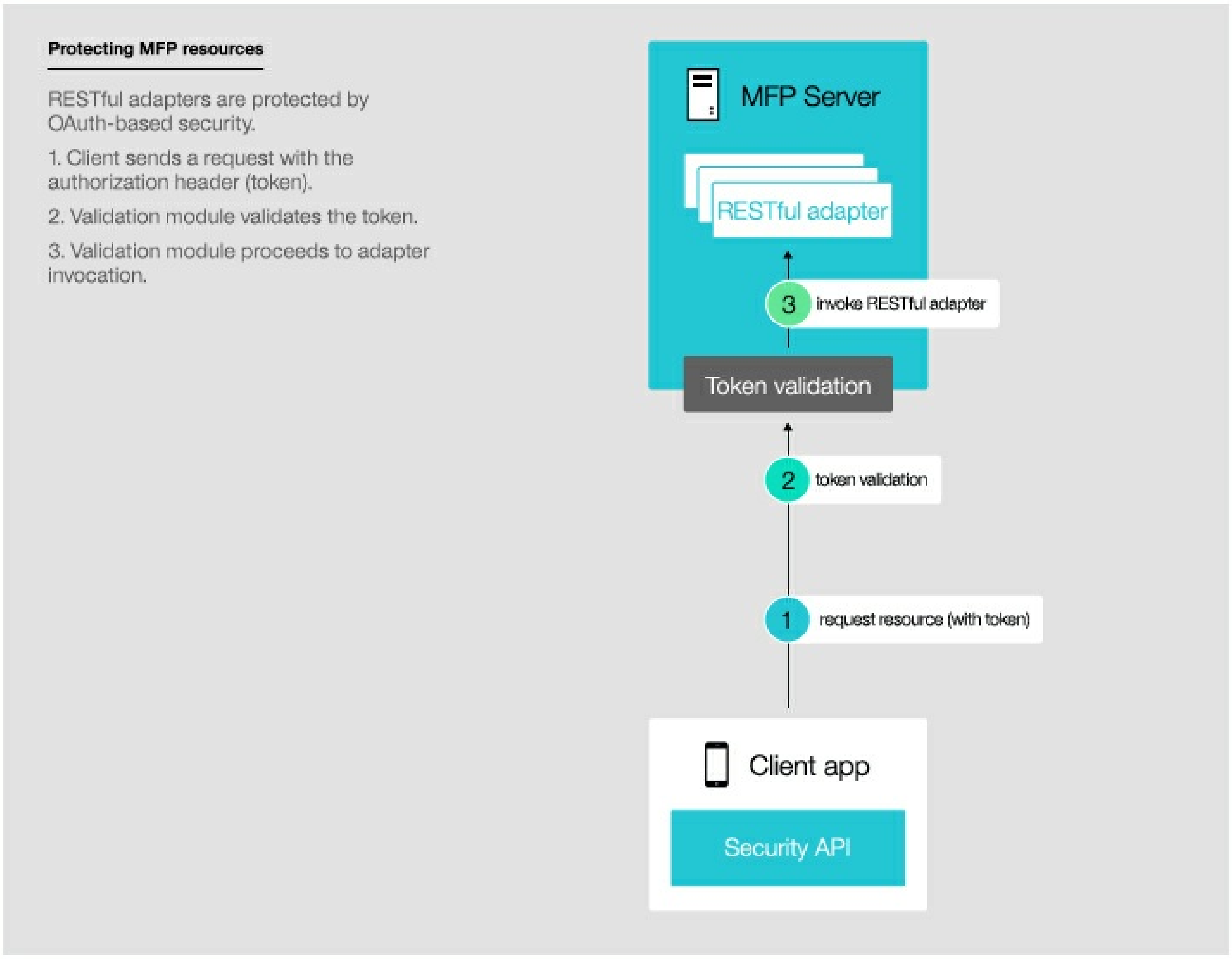
Acquiring a token

In this phase, the client undergoes security checks in order to receive an access token. These security checks use authorization entities, which are described in the next section.


Obtain token flow
Obtain a token from the MFP Server that encapsulates the authorization permissions that were granted to the client.
1. Client sends a request to obtain a token.
2. Client undergoes security checks according to the requested scope of the token.
3. Client receives and stores the token.
MFP Server
Realm
OAuth endpoints
1
2
3
request token
challenge handshake
token received
Client app
Security API
Challenge handler

Using a token to access a protected resource

It is possible to enforce MobileFirst security both on resources that run on MobileFirst Server, as shown in this diagram, and on resources that run on any external resource server as explained in tutorial Using MobileFirst Server to authenticate external resources (../../using-mobilefirst-server-authenticate-external-resources/).


Protecting MFP resources
RESTful adapters are protected by OAuth-based security.
1. Client sends a request with the authorization header (token).
2. Validation module validates the token.
3. Validation module proceeds to adapter invocation.
MFP Server
RESTful adapter
3 invoke RESTful adapter
Token validation
2 token validation
1 request resource (with token)
Client app
Security API

Authorization entities

You can protect resources such as adapters from unauthorized access by specifying a **scope** or **scope token** that contains zero or more **SecurityCheck**.

A **SecurityCheck** defines the process to be used to authenticate users. It is often associated with a **SecurityCheckConfiguration** that defines properties to be used by the SecurityCheck.

SecurityChecks are instantiated by **Security Adapters**.

The same SecurityCheck can be used to protect several resources.

The client application needs to implement a **challenge handler** to handle challenges sent by the SecurityCheck.

SecurityCheck

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

securityCheckDefinition

Security checks are defined inside adapters. 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**. However it is recommended to define your *SecurityCheck* in a separate adapter.

In your **adapter.xml**, add an XML element called `securityCheckDefinition`. For example:

```
<securityCheckDefinition name="otp" class="com.ibm.mfp.OTPSecurityCheck">
    <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 of the SecurityCheck
- Some SecurityChecks can be configured with a list of `property` elements.

SecurityCheck implementation

The class file of your SecurityCheck is where all of the logic happens. Your implementation should extend one of the provided base classes. The parent class you choose will determine the balance between customization and simplicity.

`SecurityCheckWithUserAuthentication`

TODO

`SecurityCheckWithAttempts`

TODO

`SecurityCheckWithExternalization`

TODO

`SecurityCheck`

TODO

SecurityCheckConfiguration

Each `SecurityCheck` implementation class can use a `SecurityCheckConfiguration` 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, `SecurityCheckWithUserAuthentication`'s `createConfiguration` method returns an instance of `SecurityCheckWithAuthenticationConfig`.

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

`SecurityCheckWithAuthenticationConfig` enables a property called `rememberMeDurationSec`. ```java public class SecurityCheckWithAuthenticationConfig extends SecurityCheckWithAttemptsConfig {

```
public int rememberMeDurationSec;

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

} ```

Those properties can be configured at several levels:

adapter.xml

TODO

application xml?

TODO

console?

TODO

Built-in Security Checks

List here some of the out-of-the-box security features such as authenticity, direct update, etc. Probably link to the relevant tutorial.

Scope

Scope Token

Protecting resources

Java adapters

JavaScript adapters

External resources

Configuring Authentication from the MobileFirst Console

Further Reading