Trust Association Interceptor

Overview

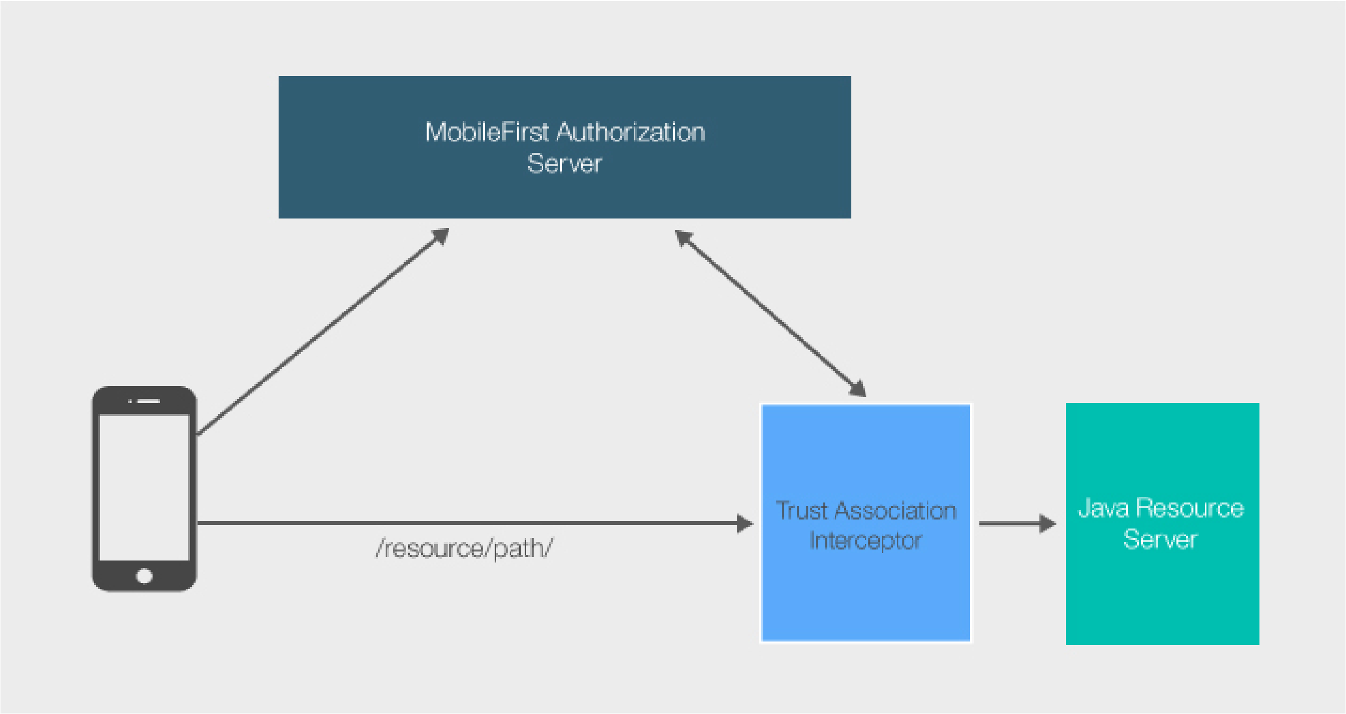
MobileFirst Foundation provides a Java library to facilitate the authentication of external resources through IBM WebSphere's Trust Association Interceptors (https://www.ibm.com/support/knowledgecenter/SSHRKX_8.5.0/mp/security/sec_ws_tai.dita).

The Java library is provided as a .jar file (**com.ibm.mfp.oauth.tai-8.0.0.jar**).

This tutorial will show how to protect a simple Java Servlet, `TAI/GetBalance`, using a scope (`accessRestricted`).

Prerequesite:

- Make sure to read the Using the MobileFirst Server to authenticate external resources (../) tutorial.
- Understanding of the MobileFirst Foundation security framework (../../).


MobileFirst Authorization Server
/resource/path/
Trust Association Interceptor
Java Resource Server

Server setup

1. Dowload the OAuth Security Extension from the MobileFirst Operations Console → Download Center → Tools tab

- Unpack the `mfp-oauth-tai.zip`

1. Add the `com.ibm.mfp.oauth.tai.jar` file to the WebSphere application server inside **usr/extension/lib**.
2. Add the `OAuthTai.mf` file to the WebSphere application server inside **usr/extension/lib/features**.

web.xml setup

Add a security constraint and a security role to the `web.xml` file of the WebSphere application server:

```
<security-constraint>
  <web-resource-collection>
    <web-resource-name>TrustAssociationInterceptor</web-resource-name>
    <url-pattern>/TAI/GetBalance</url-pattern>
  </web-resource-collection>
  <auth-constraint>
    <role-name>TAIUserRole</role-name>
  </auth-constraint>
</security-constraint>

<security-role id="SecurityRole_TAIUserRole">
  <description>This is the role that MFP OAuthTAI uses to protect the resource, and it is required to be mapped to 'All Authenticated in Application' in WAS and 'ALL_AUTHENTICATED_USERS' in Liberty</description>
  <role-name>TAIUserRole</role-name>
</security-role>
```

server.xml

Modify the WebSphere application server's `server.xml` file to your external resource.

- Configure the feature manager to include the following features:

```
<featureManager>
     <feature>jsp-2.2</feature>
     <feature>appSecurity-2.0</feature>
     <feature>usr:OAuthTai-8.0</feature>
     <feature>servlet-3.0</feature>
     <feature>jndi-1.0</feature>
</featureManager>
```

- Add a security role as a class annotation in your Java servlet :

```
@ServletSecurity(@HttpConstraint(rolesAllowed = "TAIUserRole"))
```

If you are using servlet-2.x , you will need to define the security role in your web.xml :

    <application contextRoot="TAI" id="TrustAssociationInterceptor" location="TAI.war" name="TrustAssociationInterceptor"/>
      <application-bnd>
        <security-role name="TAIUserRole">
          <special-subject type="ALL_AUTHENTICATED_USERS"/>
        </security-role>
      </application-bnd>
    </application>

* Configure OAuthTAI. this is where URLs are set to be protected:

    ```xml
    <usr_OAuthTAI id="myOAuthTAI" authorizationURL="http://localhost:9080/mfp/api" clientId="ExternalResourceId" clientSecret="ExternalResourcePass" cacheSize="500">
            <securityConstraint httpMethods="GET POST" scope="accessRestricted" securedURLs="/GetBalance"></securityConstraint>
    </usr_OAuthTAI>
    ```
    - **authorizationURL**: Either your MobileFirst Server (`http(s):/your-hostname:port/runtime-name/api`), or an external AZ Server such as IBM DataPower.

    - **clientID**: The Resource server must be a registered confidential client, to learn how to register a confidential client read the [Confidential Clients](../../confidential-clients/) tutorial. *The confidential-client **MUST** have the allowed scope `authorization.introspect` in order for it to be able to validate tokens

    - **clientSecret**: The Resource server must be a registered confidential client, to learn how to register a confidential client read the [Confidential Clients](../../confidential-clients/) tutorial.
    - **cacheSize (optional)**: TAI uses the Java-Token-Validator cache to cache tokens and introspection data data as values so that a token that comes in the request from the client won't need to be introspected again in a short time interval.

        The default size is 50,000 tokens.

        If the you want to guarantee that the tokens are introspected on each request you should set cache to 0.

    - **scope**: The resource server authenticates against scope(s). A scope could be a security check or a scope element mapped to security checks.

Using the Token Introspection Data From the TAI

From your resource you may want to access the token information that was intercepted and validated by the TAI. The list of data found on the token [can be found in this user documentation topic(https://www.ibm.com/support/knowledgecenter/SSHS8R_8.0.0/com.ibm.worklight.apiref.doc/html/refjava-mfp-java-token-validator/html/com/ibm/mfp/java/token/validator/data/package-summary.html)
To obtain this data, use the [WSSubject API](http://www.ibm.com/support/knowledgecenter/SSEQTP_8.5.5/com.ibm.websphere.wlp.doc/ae/rwlp_sec_apis.html) :

```java
Map<String, String> credentials = WSSubject.getCallerSubject().getPublicCredentials(Hashtable.class).iterator().next();
JSONObject securityContext = new JSONObject(credentials.get("securityContext"));
...
securityContext.get('mfp-device')
```

Sample

You can deploy the project on supported application servers (WebSphere Full profile and WebSphere Liberty profile).
Download the simple Java servlet (https://github.com/MobileFirst-Platform-Developer-Center/TrustAssociationInterceptor/tree/release80).

Sample usage

1. Make sure to update the confidential client (../#confidential-client) and secret values in the MobileFirst Operations Console.
2. Deploy either of the security checks: **UserLogin (../../user-authentication/security-check/)** or **PinCodeAttempts (../../credentials-validation/security-check/)**.
3. Register the matching application.
4. Map the `accessRestricted` scope to the security check.
5. Update the client application to make the `WLResourceRequest` to your servlet URL.
6. Set the scope of your securityConstraint scope to be the security check that your client needs to authenticate against.