OB v FAPI security profile

The following are high level / key differences between the two profiles:

- **Client Authentication Algorithms**: The old OB profile allowed for client authentication using client secrets. This is not sufficiently secure as a client secret is a shared secret. FAPI only allows MTLS and private_key_jwt which rely on asymmetric keys.

- **Signing algorithms**: OB profile allowed for RS256. FAPI only permits PS256 and ES256. Currently, OBIE directory cannot issue ES certs which constrains us somewhat to PS256.

- **Grant types**: OB profile allowed for authorization code grant, but recommended hybrid flow. FAPI requires hybrid flow.

- **Request objects**: FAPI has a comprehensive set of requirements on the request object (e.g. having an exp claim). OB profile only stated the need to use a signed request object, but did not go into the details of the JOSE headers etc.
## Overview on a Page

Version 3.1.5  
https://standards.openbanking.org.uk/

### Accounts
- Accounts
- Balances
- Transactions
- Statements
- Beneficiaries
- Direct Debits
- Standing Orders
- Scheduled Payments
- Products & Offers
- Parties

### Payments
- Domestic
- International
- Immediate
- Future-dated
- Standing orders
- Bulk payments

### Events
- Push notifications
- Aggregated polling

### CBPII
- Consents
- Funds checks

### Dynamic Client Reg
- OBIE SSA
- Non-OBIE SSA
- Eidas based
 Dynamic Client Registration

Now supports multiple certificate types and trust anchors!

<table>
<thead>
<tr>
<th></th>
<th>OBIE Directory SSA + OBIE WAC</th>
<th>OBIE Directory SSA + QWAC</th>
<th>Custom SSA + QWAC</th>
</tr>
</thead>
<tbody>
<tr>
<td>TPP registered on OBIE directory</td>
<td>☑</td>
<td>☑</td>
<td>✗</td>
</tr>
<tr>
<td>Directory hosted JWKS</td>
<td>☑</td>
<td>☑</td>
<td>✗</td>
</tr>
<tr>
<td>SSA issued by OBIE directory</td>
<td>☑</td>
<td>☑</td>
<td>✗</td>
</tr>
<tr>
<td>DCR payload signed by signing key on JWKS directory</td>
<td>☑</td>
<td>☑</td>
<td>✗</td>
</tr>
<tr>
<td>DCR payload signed by external signing key e.g. QSealC</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
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</tbody>
</table>
OBIE Functional Conformance Tool (FCT)

27th April, 2020

Julian Coombes / Glyn Jackson

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Background

• OB has created a number of open source tools to allow implementers to test against the Open Banking Standards
• The tools also allow ASPSPs to submit results to Open Banking for certification
• All the tools are open source and available on Bitbucket.org
  https://bitbucket.org/openbankingteam/conformance-suite
• The tools are run in Docker containers making them easy to execute
• We've developed two tools - the Functional Conformance Tool and the Dynamic Client Registration Tool. Today we'll be focusing on the Functional Conformance tool
Introduction

- OB is about Banking Standards
- Specifications define our Standards
- OpenAPI/Swagger help define the API interfaces for a specification
- FCT tests OB APIs for Accounts, Payments and Confirmation of Funds
- The tool uses the information in the Specifications and Swagger definitions to build tests that interrogate an ASPSP implementation of our Standards
Functional Conformance Tool

Two things determine how an API Implementation should behave:

1. Guidance and definitions in the API Specification
2. Swagger/OpenAPI file, a formal definition of:
   - EndPoints
   - Response codes
   - Data formats

The tool checks the Swagger Endpoint constraints and the wider API behaviours defined in the Specifications that can't easily be expressed in Swagger.

Things that can't easily be expressed in Swagger:

- Results of a sequence of calls
- Time related concerns, eg. token expiry, Payment dates
- Pagination rules for transaction listings
What the tool provides

The tool consists of 3 main parts:-

• Discovery
• Testing
• Reporting

Discovery - builds a picture of the ASPSP implementation - which endpoints are supported, authentication methods, server locations etc.

Testing - allows us to craft any request we like and examine any aspect of an ASPSPs response

Reporting - captures the results of the tests for submission to OB
Structure

The tool uses JSON to define all inputs and outputs.

Discovery
• Discovery.json - Endpoint definitions for the API under test
• Config.json - Credentials, certs, account

Testing
• JSON is used to define testcase collections for each api set
• The testcases are then filtered by the discovery endpoints to get the run set of test

Reporting
• Report.json file - contains the results of running the tool - showing each test passed and failed
Test cases

A Simple TestCase:
• Defined in JSON
• "input" - defines request
• "expect" - defines tests
• Calls /accounts endpoint
• Response checks:-
  Status code 200
  Swagger response validation
  x-fapi-interaction-id present

```json
1 {  
2   "@id": "OB-301-ACC-100000",  
3   "name": "Check Account endpoint",  
4   "input": {  
5     "method": "GET",  
6     "endpoint": "/accounts/$accountId",  
7     "headers": {  
9       "Authorization": "Bearer $accountToken0001",  
10      "x-fapi-financial-id": "$fapiFinancialId",  
12      "x-fapi-interaction-id": "$interactionId",  
14      "x-fcs-testcase-id": "OB-301-ACC-100000"  
16     }  
17   },  
19   "expect": {  
21     "status-code": 200,  
23     "schema-validation": true,  
25     "matches": [  
27       {  
29         "header-present": "x-fapi-interaction-id"  
31       }  
33     ]  
35   }  
37 }
```
Prerequisites

Prerequisites for running the tool:

- Docker - The FCT runs in a docker container
- OB Transport and Signing Certificates
- Valid account credentials
- A working .well-known/openid-configuration containing authentication mechanisms, signing methods etc.

The following command will launch the FCT:

```
docker run --rm -it -p 8443:8443 "openbanking/conformance-suite:v1.4.0"
```

Pointing a browser at https://localhost:8443 will show the FCT UI.
Thank you

www.openbanking.org.uk