

SBR Conformance and Assurance Framework Requirements

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Version	Date	Author	Summary of Changes
0.1	23/10/2017	Nicola Sellick	Initial draft created from internal version
0.2	8/11/2017	Nicola Sellick	Updates from outcomes of series of Conformance/Assurance Focus Group meetings.

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1 Background

Currently, the ATO provides a conformance suite for each SBR external service or related set of service interactions. The purpose of the conformance suite is to facilitate software developers (also known as digital service providers (DSPs)) conformance and self-certification of production readiness of their product, ensuring that their product implements the functionality required by the ATO and complies with the services defined in the release documentation package. It allows the DSP to test their integration with the ATO service, but not test the ATO service itself.

However, as the ATO releases more complex services, where factors such as the sequencing of what to send when is complex, or the data itself requires a higher level of understanding, the current conformance suite framework does not provide adequate capability for DSPs to assure that their products are delivering the outcomes expected by the ATO.

Each conformance suite consists of the following:

1. Conformance suite documentation
2. Conformance test case payloads

These should be used in conjunction with the credential keystore, common SBR documentation (e.g. Common Web Implementation Guide (WIG), SDK etc), the service (message) specific package contents (e.g. MST, validation rules) & relevant Business Implementation Guide (BIG).

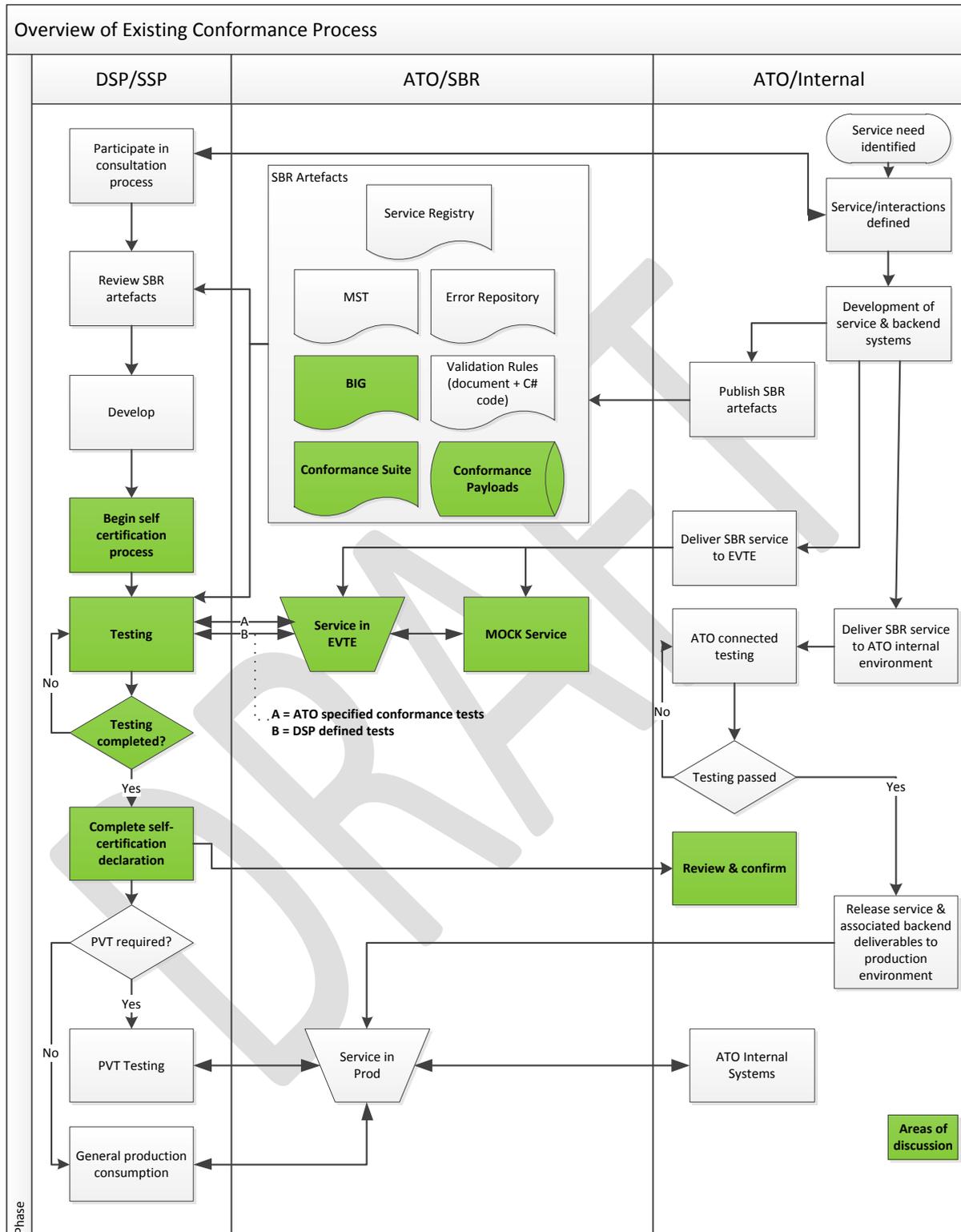
Conformance tests are carried out in the ATO's External Vendor Testing environment (EVTE). Services in EVTE do not connect to the ATO's backend applications or to Access Manager; instead a stubbing tool is used to simulate this connection. In all other aspects from the SBR channel point of view, they go through the same authentication, validation & transformation processes as in production. DSPs must run all positive conformance tests in order to self-certify for a particular service. They can also run any other tests they want to trigger error scenarios. However, they are unable to confirm they have mapped all data 100% accurately due to the current approach to conformance tests being limited to only checking a limited set of data.

Once deployed into production, a service may be identified as needing Production Verification Testing (PVT). The ATO and DSP arrange and agree on times for PVT in production using real data. There is a resource intensive manual process to verify the data sent by the DSP is received, processed and if relevant, displayed correctly in the ATO systems of record. Not all DSPs and not all services are subject to PVT. There is not a well-defined set of criteria that identify when PVT is needed and the scope of the PVT.

This paper aims to discuss options for improving the EVTE Conformance process for SBR services as well as incorporating an Assurance Process into it. It will not include a review of the operational framework, current accreditation processes or the PVT process itself.

The problem, goals & requirements identified in this paper have been shaped by discussions with the STP Testing Micro Focus Group, ABSIA & feedback from DSPs through a variety of channels.

2 Overview of the Current Testing Process



Notes

- ATO provides C# Validation Rules that DSPs can incorporate directly or indirectly into their software. These rules are also captured in a document for reference. These are the same

rules ATO uses to validate the messages. DSPs should implement these rules in their solutions and test against them.

- DSPs can optionally run any test using their own data in the EVTE environment.
- DSPs must also at a minimum run ATO specific conformance tests to certify and whitelist their solution.

3 The Problem

1. The current certification process only tests the technical integrity of the data fields, but the scope of the legislative and business design changes of some services is of such significance, that there is uncertainty about the quality of the output data values. If the vendor software is found, after deployment, to be responsible for failing to meet ATO expectations, DSPs believe they will be held financially liable. Alignment with certification, timeframes and cost will directly impact timeline capability.
2. It is unknown if all developers are doing the same thing. The Business Implementation Guide (BIG) may/may not be read, understood or followed. EVTE test results are not always reviewed by the ATO. How does ATO have confidence that the outcome is the same from all external software? Documentation can be interpreted differently by each DSP.
3. Conformance tests are only a minimum set of tests. More real-world tests are needed for more complex interactions.
4. Conformance tests are not always realistic business scenarios & may not align across the documentation sets. There can be mismatches between information in the MST (message structure table), Conformance document, conformance payload, BIG etc. Error messages supplied as possible outcomes from the service are sometimes different to what the ATO backend actually supplies. SBR artefacts are produced by different groups within the ATO & at different times in the service development life cycle.
5. Not enough support for complex functionality that requires knowledge of specific sequencing of interactions.
6. Business implementation guide can be very large. Large level of knowledge required to understand the impact & consequence of what is being sent.
7. DSPs that use another party to send the message to the ATO cannot certify they have passed any ATO tests. Only message senders can pass conformance tests & whitelist.
8. ATO has poor visibility of test cases run by DSPs. Can only white/black list message senders.
9. For a variety of reasons DSPs have come to rely on PVT as a means of checking outcomes they could not do with confidence in EVTE. This imposes resource pressures on ATO and the DSP. These are increasing and are not sustainable.
10. The criteria for requiring PVT is not well-defined.

4 Goals

1. Assure software users that no matter which software package they use, the outcome will be consistent in terms of meeting reporting obligation(s) to ATO
2. Assure ATO that incoming data is reliable for policy decisions & meet legislative requirements

3. Assure DSP that they have correctly interpreted the service requirements & delivered the solution as expected
4. Assure the industry that there is a level playing field for SBR solutions
5. Assure ATO that their SBR solutions deliver expected outcomes

5 Requirements

Initial requirements were gathered from various external consultations as well as internal discussions within the ATO. These were further refined & confirmed by a series of technical focus group meetings with representatives from the digital service provider community. A priority for each requirement was also set during this process. For completeness, requirements that were identified as part of the existing conformance testing process were also included.

High Priority

- 1 ATO supplied data for testing to be made available in alternative formats for DSP consumption, ideally in human readable form. Suggested formats were csv, Excel spreadsheets & XML, with majority requesting csv. Each data item should be identified at least by the MST label or alias. It is recognised that additional data that is not specifically in the payload may need to be included to help the DSPs set up their data. Existing conformance payloads to continue to be provided as well.
- 2 Include mandatory conformance scenarios that provide a minimum level (as defined by ATO business) of quality assurance that must be passed before being allowed to consume the related service/interactions in production. These scenarios would have different kinds of test cases created to cater for the different lodgers (e.g. client, intermediary). DSP's would then run the appropriate test for the lodger(s) they support.
- 3 Include optional assurance tests, grouped by functional capability. The functional capability to be determined in consultation with DSPs.
- 4 Ensure that business assurance has confirmed that UAT scenarios are business valid and correct.
- 5 Ensure all ATO SBR artefacts are consistent in content across the different types of documents (Urgent).
- 6 Ensure all test data is business valid. Certain services/interactions will also require additional consultation with community specialists. Such services will be identified during the normal co-design process with DSPs.
- 7 Identify and document the circumstances and requirements for PVT. There should be a well-defined and agreed approach for what PVT is required and the scope of the PVT and which scenario and DSP participates in PVT. (High for new services, low for existing services.) This, together with the other requirements would remove the reliance of using PVT to confirm outcomes that can be achieved in EVTE. Ideally, the requirement for PVT should be identified as early as possible & indicated for the relevant service(s) in the Service Registry.

Medium Priority

- 1 Both conformance & assurance tests to be able to confirm mapping of all relevant data elements by providing appropriate message responses

- 2 Create a mechanism or process for DSPs/SWD to receive the data as mapped by ATO. They can then self-verify/certify that inbound data has been mapped correctly. Ensure test data supplied (with the exception of keystore related details) has been validated in ATO UAT testing regimes. Consider creating 'Cross Check Cases' similar to those used in ELS. Ideally DSPs' want the ATO to perform the comparison; getting confirmation when the payload matched expectations & the expected outcome when it did not.

ATO Priority

- 1 The 'confirm mapping' responses must not create or generate EVTE only response messages. Any message returned in EVTE must also be a production message.
- 2 Ensure that any changes to error messages that are passed through SBR from an ATO backend system are under change control across all ATO systems once a conformance suite has been published
- 3 Ensure that any changes to error messages that are passed through SBR from an ATO backend system are under change control across all ATO systems once a conformance suite has been published
- 4 Confirm that DSPs must also have their own means of testing their software & not rely solely on the ATO conformance/assurance testing process. This requirement is partially addressed with the release of some C# validation components. The full set of these components is expected in 2018 & is considered a high priority by the DSPs.

Requirements from Existing Process

- 1 Ensure DSPs can confirm service connection to the ATO
- 2 Ensure data conformance against the schema of the message
- 3 Ensure validation of incoming data against the published validation information
- 4 Ensure message exchange

6 Options for Improvements in DSP Testing

Several options have been discussed & can be broadly grouped into the following categories:

1. Enhanced Stubbing
2. Full Connectivity with ATO Backend Systems
3. Replicate ATO Backend Systems data in EVTE

The enhancements will focus on the first category due to the time & costs involved in the other options. The requirements can be met without providing the latter options.

7 Definitions

Software Conformance (Technical Assurance)

Confirms software has technical capability to:

- Send a message that is syntactically correct & valid
- Receive & process responses

- Handle any technical error during communication

These tests are mandatory (except negative tests).

Software Assurance (Business Assurance)

Confirms software has technical capability to:

- Send a message (or series of messages) which is (are) valid in the business sense
- Receive & process validation & business responses
- Handle validation &/or business errors returned to the software

These tests are optional.

8 Scope

Whilst the improvements being sought in the current Conformance Testing Process are to be applied to all SBR2 services, ATO proposed to focus the changes on a small set of services initially & have recommended this be done with the STP services. ATO would look to implement the enhancements of other services over a period of time on a case by case basis in consultation with DSPs.

9 References

Summary documents from Focus Group meetings



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Conformance_Assura

Draft Assurance Framework Proposal



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