



Introducing the Interoperability Test Bed

Interoperability Test Bed
European Commission, DIGIT

interoperable
europe

What is the Test Bed?

ITB

Interoperability
Test Bed

An online, intuitive and
self-service platform for
conformance testing of IT
systems against semantic and
technical specifications

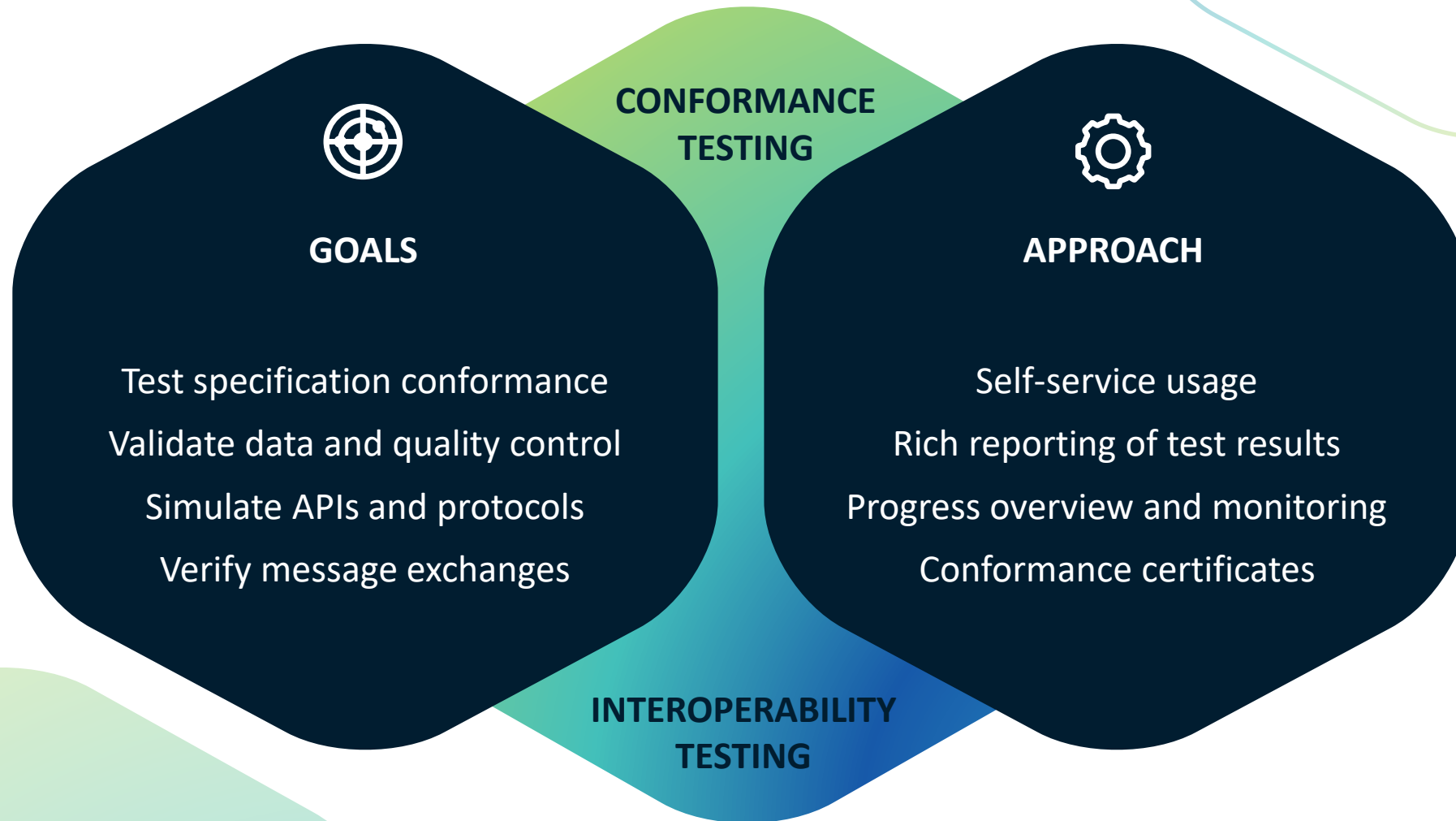


Powered by
DIGIT



Standards based
([GITB CWA](#))

What can it be used for?



Key services



VALIDATORS

Used for data validation
Anonymous and stateless
Multiple input channels
Various reporting outputs
Configuration-driven



CONFORMANCE TEST BED

Used for conformance testing
Account-based access
Scenario-based test cases
Rich monitoring and reporting
Extensible capabilities

Flexible usage models



USE AS A DIGIT SERVICE

Use as services

Shared cloud-based instances
Hosted and operated by DIGIT
User-managed configuration
Distinct setup per project



INSTALL ON-PREMISE

Use as components

Public Docker images
Hosted and operated by users
Allows internal integrations
Allows access restrictions

User support



RICH DOCUMENTATION

User and developer guides

Step-by-step tutorials

News and release notes

AI assistant



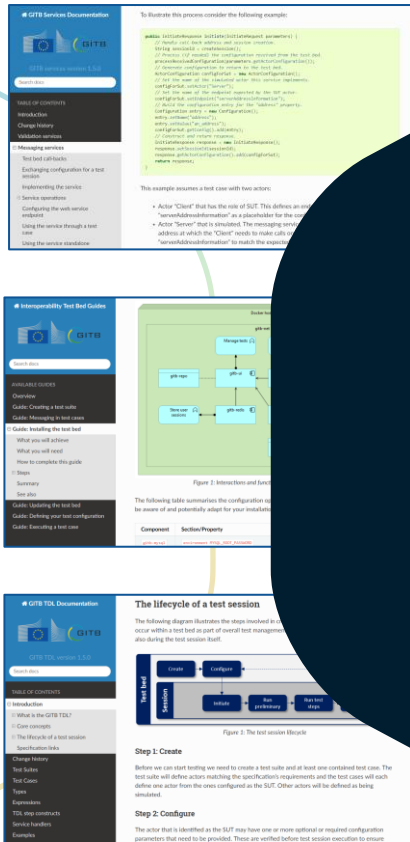
DEVELOPMENT SUPPORT

Backlog prioritised on feedback

Direct support channel

Regular releases

Nightly builds





Validators

Validator syntax support

ITB

RDF validator

Validate **RDF** data
with [SHACL shapes](#)

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XML validator

Validate **XML** data
with [XSDs](#) and
[Schematron](#)

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CSV validator

Validate **CSV** data
with [Table Schema](#)

ITB

JSON validator

Validate **JSON** data
with [JSON Schema](#)



Available as DIGIT services

See the [RDF](#), [XML](#), [CSV](#), [JSON](#) guides



Available on Docker Hub

See the [RDF](#), [XML](#), [CSV](#), [JSON](#) images

Validator setup as DIGIT service

STEP 1

Define configuration



Validator configuration

Validation rules

Customisations

STEP 2

Share configuration



Configuration
by Test Bed team

STEP 3

Use validator APIs



Web interface
for users

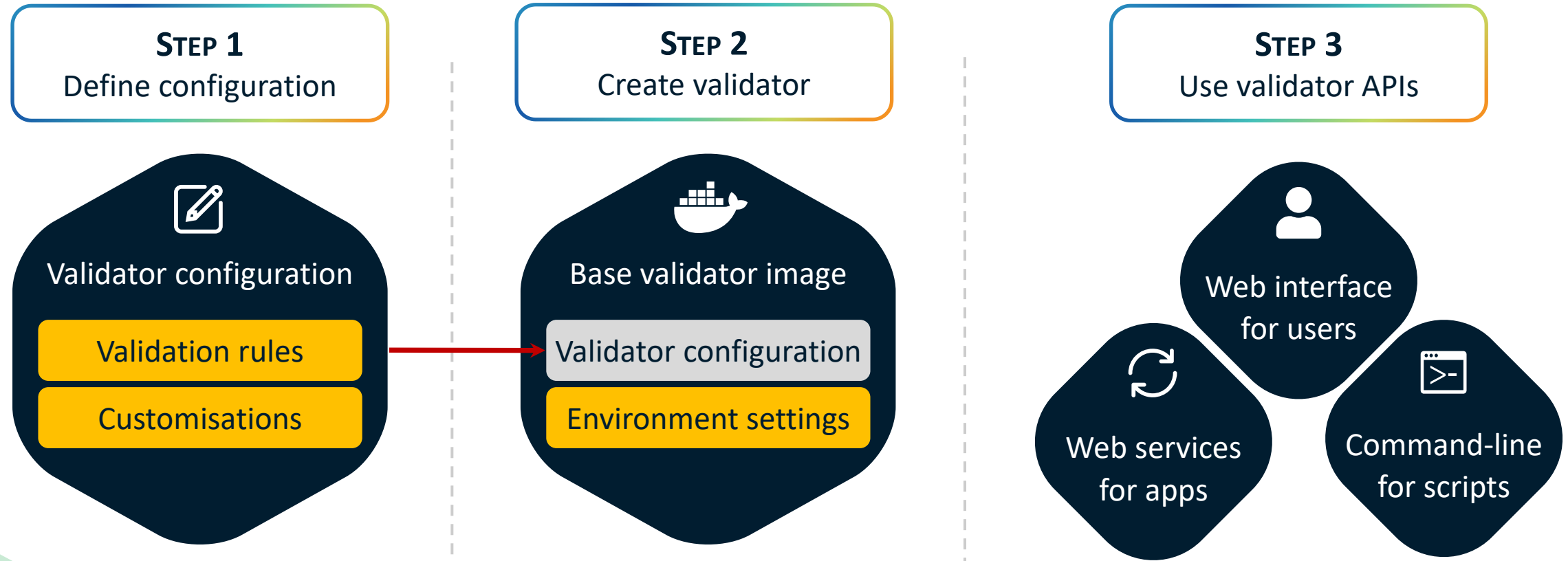


Web services
for apps



Command-line
for scripts

Validator setup on-premise





Validator demo

Validation of an electronic invoice
using the [eInvoicing validator](#)

The background features two large, symmetrical, abstract shapes resembling stylized leaves or wings. These shapes are composed of numerous fine, overlapping lines and a dense cloud of small dots. The color palette is primarily dark blue, with vibrant green and teal lines and dots, and some lighter blue accents. The overall effect is a complex, organic, and futuristic pattern.

Conformance Test Bed

Conformance testing capabilities



VALIDATION

XSD

Schematron

XPath

JSON Schema

Table Schema

GraphQL

SHACL

RegExp

ASiC

...



MESSAGING

HTTP

HTTPS

eDelivery

SOAP

REST

UN/FLUX

AS2

AS4

TCP

UDP

...



PROCESSING

ASiC

ZIP

SBD

Timestamps

Signatures

Digests

Templates

UUIDs

Tokens

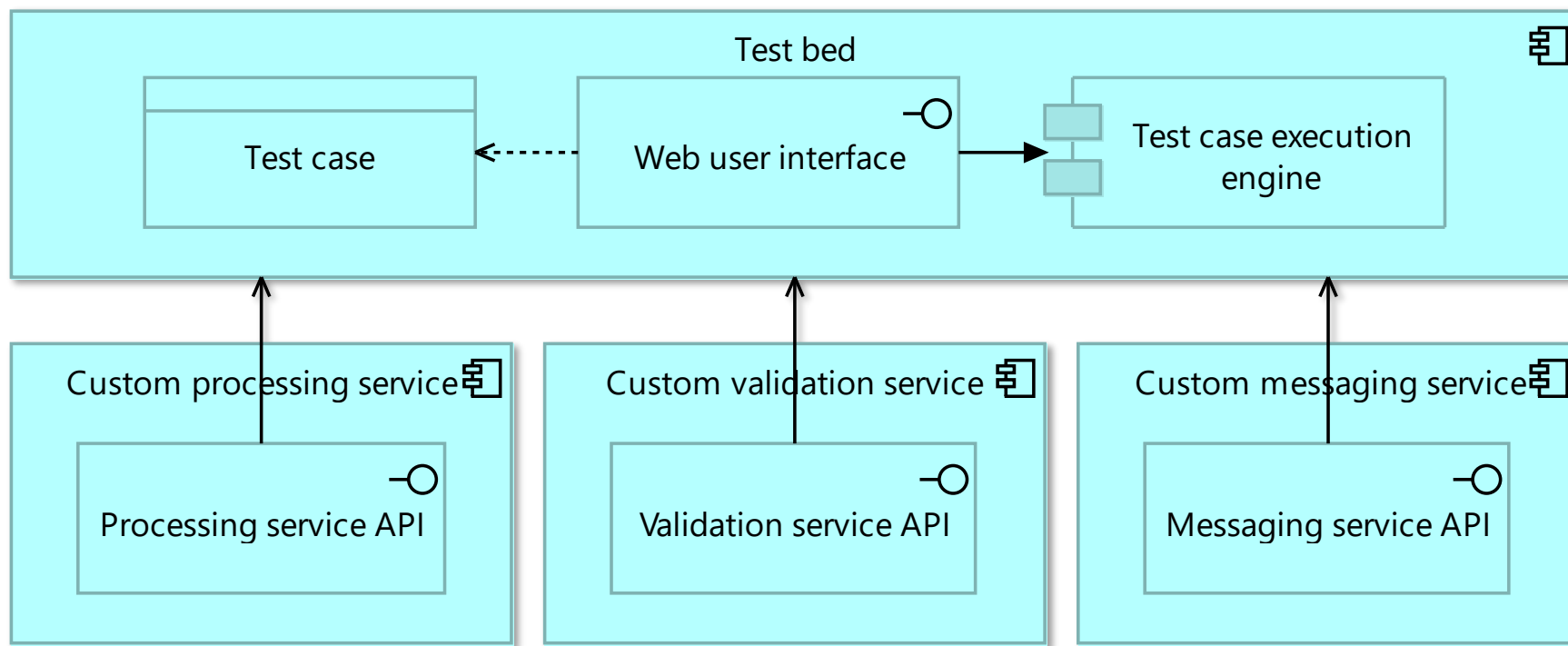
Webhooks

RegExp

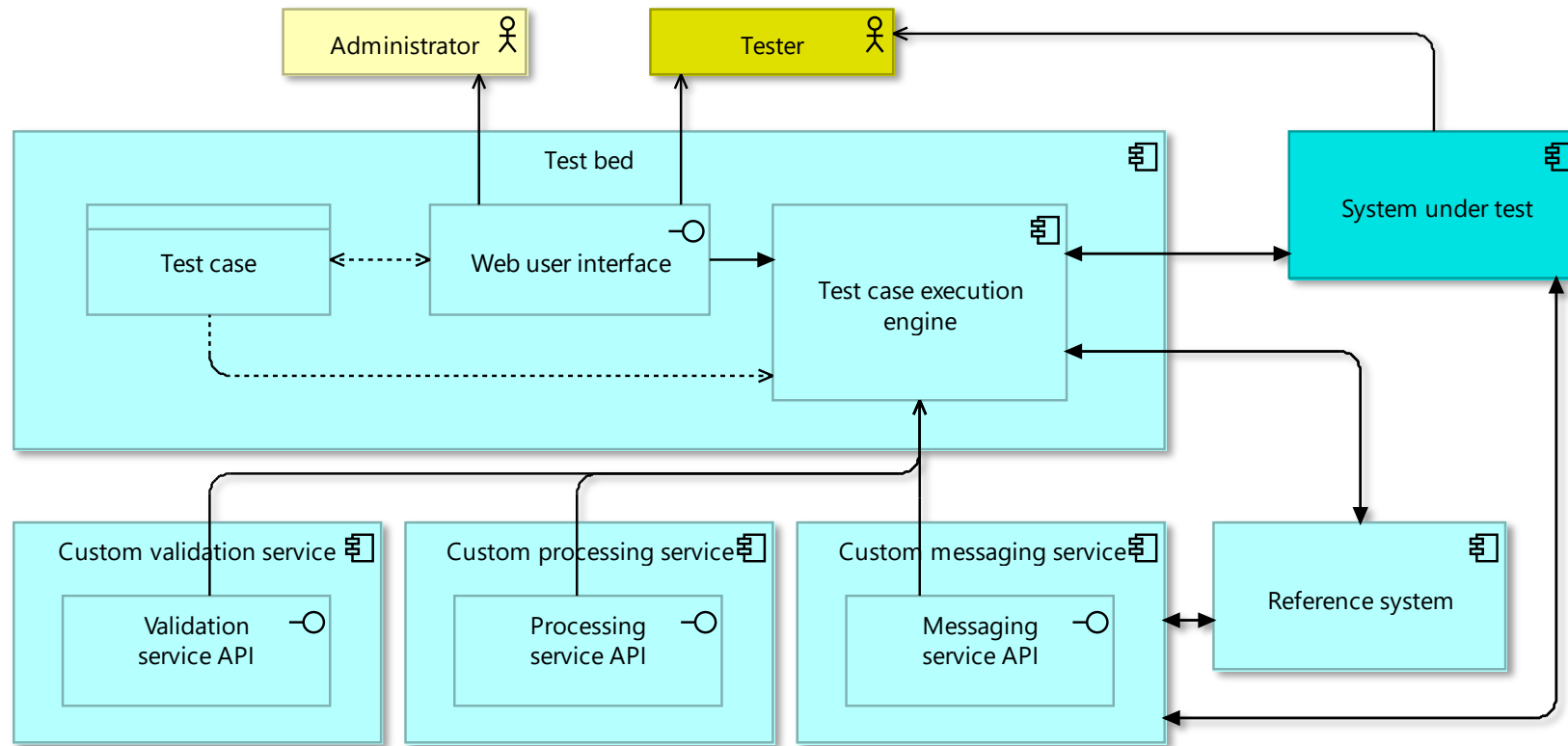
XPath

...

Custom capability extensions



Conformance testing overview



ADMINISTRATOR
Configure tests
Monitor progress
Manage users

TESTER
Manage organisation
Execute tests
Review results



Test Bed demo

Test execution, reporting and monitoring
for testers and administrators

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guides](#)

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and click “Try out our demos”

CONTACT US

Send your questions
and feedback to
DIGIT-ITB@ec.europa.eu

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Annex A

Validator demo screenshots

Validator input



eInvoice Validator

This is a service offered by the European Commission's DIGIT as part of the [Digital Europe Programme](#), allowing you to validate electronic invoices against the requirements of the [European Standard on eInvoicing](#). This service is also available via [REST API](#) and [SOAP API](#), with complete eInvoicing conformance testing supported through the [eInvoicing Test Bed](#).

Questions and feedback on this service can be sent to EC-EINVOICING-SUPPORT@ec.europa.eu.

File to validate

File



Select file...

Validate as

Validate

This service is powered by the Interoperability Test Bed, a conformance testing service offered by the European Commission's DG DIGIT for projects involved in the delivery of cross-border public services. Find out more [here](#).

Validator result overview

Validation result

Overview

Date: 2021-06-10T09:07:30.701Z
File name: invoice.xml
Validation type: UBL Invoice XML
Result: FAILURE
Errors: 25
Warnings: 17
Messages: 0

[View annotated input](#) [Download XML report](#) [Download PDF report](#)

Details

✖ [BR-CO-10]-Sum of Invoice line net amount (BT-106) = Σ Invoice line net amount (BT-131).

Test: $(\text{xs:decimal}(\text{cbc:LineExtensionAmount}) = (\text{round}(\text{sum}(\text{cac:InvoiceLine}[\text{cac:CreditNoteLine}]/\text{xs:decimal}(\text{cbc:LineExtensionAmount})) * 10 * 10) \text{div } 100))$

✖ [BR-CO-13]-Invoice total amount without VAT (BT-109) = Σ Invoice line net amount (BT-131) - Sum of allowances on document level (BT-107) + Sum of charges on document level (BT-108).

Test: $((\text{cbc:ChargeTotalAmount}) \text{ and } (\text{cbc:AllowanceTotalAmount}) \text{ and } (\text{xs:decimal}(\text{cbc:TaxExclusiveAmount}) = \text{round}((\text{xs:decimal}(\text{cbc:LineExtensionAmount}) + \text{xs:decimal}(\text{cbc:ChargeTotalAmount}) - \text{xs:decimal}(\text{cbc:AllowanceTotalAmount})) * 10 * 10) \text{div } 100)) \text{ or } (\text{not}(\text{cbc:ChargeTotalAmount}) \text{ and } (\text{cbc:AllowanceTotalAmount}) \text{ and } (\text{xs:decimal}(\text{cbc:TaxExclusiveAmount}) = \text{round}((\text{xs:decimal}(\text{cbc:LineExtensionAmount}) - \text{xs:decimal}(\text{cbc:AllowanceTotalAmount})) * 10 * 10) \text{div } 100)) \text{ or } ((\text{cbc:ChargeTotalAmount}) \text{ and } \text{not}(\text{cbc:AllowanceTotalAmount}) \text{ and } (\text{xs:decimal}(\text{cbc:TaxExclusiveAmount}) = \text{round}((\text{xs:decimal}(\text{cbc:LineExtensionAmount}) + \text{xs:decimal}(\text{cbc:ChargeTotalAmount})) * 10 * 10) \text{div } 100)) \text{ or } (\text{not}(\text{cbc:ChargeTotalAmount}) \text{ and } \text{not}(\text{cbc:AllowanceTotalAmount}) \text{ and } (\text{xs:decimal}(\text{cbc:TaxExclusiveAmount}) = \text{xs:decimal}(\text{cbc:LineExtensionAmount})))$

Validator result details

Validation

Overview

Date:

File name:

Validation type:

Result:

Errors:

Warnings:

Messages:

View annotated

Details

Test: (xs:decimal(cbc:ChargeTotalAmount) and (cbc:AllowanceTotalAmount) and (xs:decimal(cbc:TaxExclusiveAmount) = round((xs:decimal(cbc:LineExtensionAmount) + xs:decimal(cbc:ChargeTotalAmount) - xs:decimal(cbc:AllowanceTotalAmount)) * 10 * 10) div 100)) or (not(cbc:ChargeTotalAmount) and (cbc:AllowanceTotalAmount) and (xs:decimal(cbc:TaxExclusiveAmount) = round((xs:decimal(cbc:LineExtensionAmount) - xs:decimal(cbc:AllowanceTotalAmount)) * 10 * 10) div 100)) or ((cbc:ChargeTotalAmount) and not(cbc:AllowanceTotalAmount) and (xs:decimal(cbc:TaxExclusiveAmount) = round((xs:decimal(cbc:LineExtensionAmount) + xs:decimal(cbc:ChargeTotalAmount)) * 10 * 10) div 100)) or (not(cbc:ChargeTotalAmount) and not(cbc:AllowanceTotalAmount) and (xs:decimal(cbc:TaxExclusiveAmount) = xs:decimal(cbc:LineExtensionAmount))))

XML content

Close

```
157 <cbc:TaxableAmount currencyID="DKK">2750.00</cbc:TaxableAmount>
158 <cbc:TaxAmount currencyID="DKK">330.00</cbc:TaxAmount>
159 <cac:TaxCategory>
160 [BR-CL-17]-Invoice tax categories MUST be coded using UNCL5305 code list
161 <cbc:ID schemeID="UNCL5305">AA</cbc:ID>
162 <cbc:Percent>12</cbc:Percent>
163 <cac:TaxScheme>
164 <cbc:ID>VAT</cbc:ID>
165 </cac:TaxScheme>
166 </cac:TaxCategory>
167 </cac:TaxSubtotal>
168 </cac:TaxTotal>
169 [BR-CO-10]-Sum of Invoice line net amount (BT-106) = Σ Invoice line net amount (BT-131).
170 [BR-CO-13]-Invoice total amount without VAT (BT-109) = Σ Invoice line net amount (BT-131) - Sum of allowances on
171 document level (BT-107) + Sum of charges on document level (BT-108).
172 [BR-CO-16]-Amount due for payment (BT-115) = Invoice total amount with VAT (BT-112) -Paid amount (BT-113) +Rounding
173 amount (BT-114).
174 <cac:LegalMonetaryTotal>
175 <cbc:LineExtensionAmount currencyID="DKK">415000.00</cbc:LineExtensionAmount>
176 <cbc:TaxExclusiveAmount currencyID="DKK">4250.00</cbc:TaxExclusiveAmount>
```




Annex B

Test Bed demo screenshots

Welcome page



Welcome to the Interoperability Test Bed

The Interoperability Test Bed is a platform for self-service conformance testing against semantic and technical specifications.

Click to log in

Assigned a new role by an administrator? [Confirm your new role.](#)

New to the Test Bed? [Register in a public community](#) or [try out our demos.](#)

To connect to the Test Bed you need to first authenticate using your EU Login account. If you are new to EU Login follow [this tutorial](#) to get started.

Privacy note: By connecting you consent to the use of cookies to manage your session. Please refer to our [legal notice](#) for more information.

Migration note: If you have been using a functional account to log in click [here](#) to migrate it to EU Login. Step-by-step instructions are available in [this guide](#).



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Home page

Home

Home

MY TESTS

- My conformance statements
- My test sessions
- My organisation

« Collapse menu

Welcome to the Interoperability Test Bed

To get started with available tests click on the **My conformance statements** from the menu.

From that point you will be able to register a **system** to test for and define for it one or more **conformance statements**. To launch a test select a conformance statement and execute one or more of its defined **tests**.

Click [here](#) for information on the Test Bed. Questions and feedback can be provided to DIGIT-ITB@ec.europa.eu.

European Commission

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List of conformance statements (specifications to test for)

My conformance statements

Home > My organisation > Demo system > Conformance statements

Conformance statements

System: Demo system

Search statements...

Show statements... Download report

Core Public Service Vocabulary Application Profile (CPSV-AP)	27-03-2024 17:27:52	0 <input checked="" type="checkbox"/> 1 <input checked="" type="checkbox"/> 0 <input type="checkbox"/>	100.0%	<input checked="" type="checkbox"/>
Electronic invoicing	27-03-2024 17:33:22	0 <input checked="" type="checkbox"/> 1 <input checked="" type="checkbox"/> 0 <input type="checkbox"/>	100.0%	<input checked="" type="checkbox"/>

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Conformance statement details

The screenshot displays a web application interface for managing conformance statements. At the top, a blue header bar contains the text "My conformance statements". Below this, a breadcrumb trail reads: "Home > My organisation > Demo system > Conformance statements > Core Public Service Vocabulary Application Profile (CPSV-AP)".

The main content area is titled "Conformance statement details". It features a sidebar on the left with icons for home, settings, list, and expand. The main panel shows the following information:

- Organisation:** Demo organisation
- System:** Demo system
- Core Public Service Vocabulary Application Profile (CPSV-AP):** CPSV-AP offers a common data model for describing public services offered by public administrations. The CPSV-AP standardises the semantics of personal milestones, including having a child, beginning education, looking for a new job, as well as professional changes such as starting or financing a company, hiring an employee.
- Status:** FAILURE
- Last update:** 27-03-2024 17:27:52
- Test results:** 0 ✓ 1 ✗ 0 ⚡
- Progress bar:** 100.0% (red)

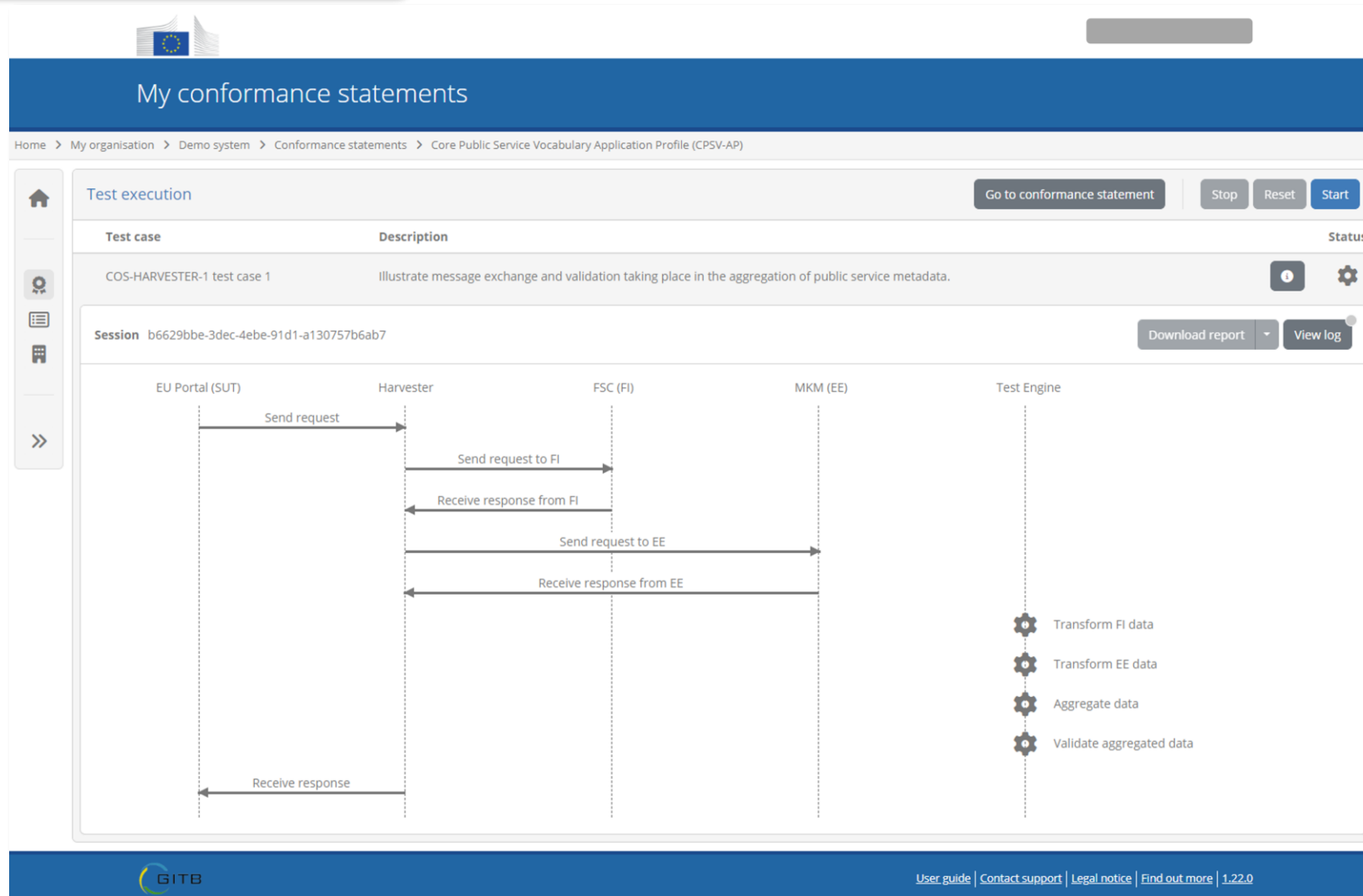
Below this information, there are buttons for "Download report", "View system", and "Back".

The interface also includes tabs for "Conformance tests" and "Configuration parameters". Under "Conformance tests", there is a search bar and a "Show tests..." button. The results show:

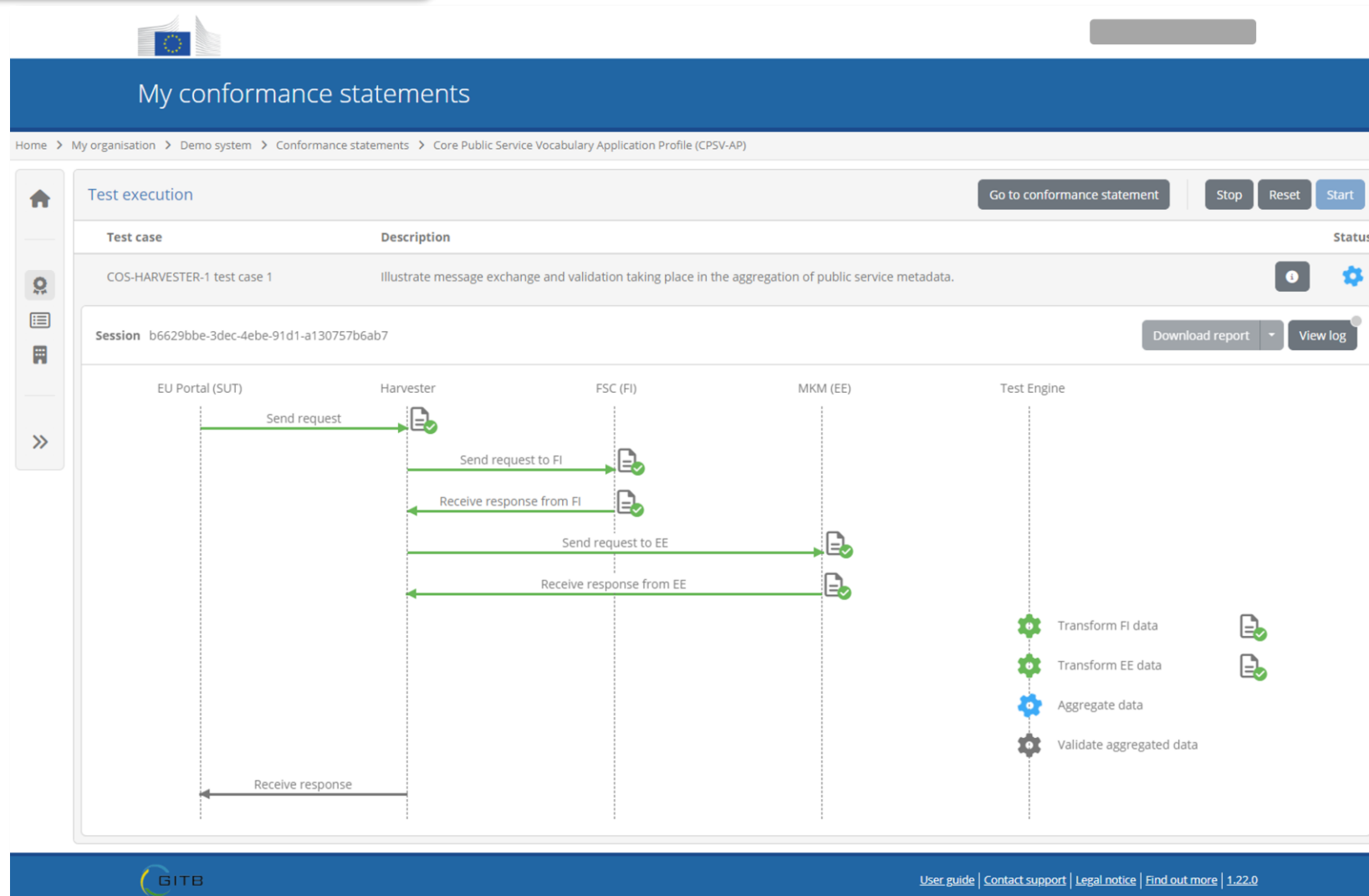
- COS-HARVESTER-1**: Test suite that simulates the collection of public service metadata from National endpoints (FI and EE) and their exposure as CPSV-AP. It has a play button and a close button.
- COS-HARVESTER-1 test case 1**: A multi-step test case with a timestamp of 27-03-2024 17:27:52, search, info, play, and close buttons.

The footer of the interface includes the GITB logo and links for "User guide", "Contact support", "Legal notice", "Find out more", and "1.22.0".

Test session (before starting)





Test session (during execution)






Validation error details

Step report

Result	FAILURE	Time	2024-04-09 08:58
--------	----------------	------	------------------

xml  

sch  

Details 

- ✖ [BII2-T10-R051]-Sum of line amounts MUST equal the invoice line net amounts
- ✖ [BII2-T10-R052]-An invoice total without VAT MUST equal the sum of line amounts plus the sum of charges on document level minus the sum of allowances on document level

Close Download report

xml

```
162 <cbc:TaxAmount currencyID="DKK">330.00</cbc:TaxAmount>
163 <cac:TaxCategory>
164 <cbc:ID schemeID="UNCL5305">AA</cbc:ID>
165 <cbc:Percent>12</cbc:Percent>
166 <cac:TaxScheme>
167 <cbc:ID>VAT</cbc:ID>
168 </cac:TaxScheme>
169 </cac:TaxCategory>
170 </cac:TaxSubtotal>
171 </cac:TaxTotal>
172 ✖ [BII2-T10-R051]-Sum of line amounts MUST equal the invoice line net amounts
173 ✖ [BII2-T10-R052]-An invoice total without VAT MUST equal the sum of line amounts plus the sum of
charges on document level minus the sum of allowances on document level
174 <cac:LegalMonetaryTotal>
175 <cbc:LineExtensionAmount currencyID="DKK">415000.00</cbc:LineExtensionAmount>
176 <cbc:TaxExclusiveAmount currencyID="DKK">4250.00</cbc:TaxExclusiveAmount>
177 <cbc:TaxInclusiveAmount currencyID="DKK">4956.00</cbc:TaxInclusiveAmount>
178 <cbc:ChargeTotalAmount currencyID="DKK">100.00</cbc:ChargeTotalAmount>
179 <cbc:PayableRoundingAmount currencyID="DKK">1.00</cbc:PayableRoundingAmount>
180 <cbc:PayableAmount currencyID="DKK">4956.00</cbc:PayableAmount>
181 </cac:LegalMonetaryTotal>
182 <cac:InvoiceLine>
183 <cbc:ID>1</cbc:ID>
184 <cbc:InvoicedQuantity unitCode="C62" unitCodeListID="UNFCFR20">1000</cbc:InvoicedQuantity>
```

Close Copy to clipboard

Overview of executed tests

The screenshot displays the 'My test sessions' web application. The interface includes a sidebar with navigation icons (Home, Settings, Reports, etc.), a main header 'My test sessions', and a content area with filters and a table of test sessions. A search dropdown is open over the 'Specification' column.

Filters:

- Specification group: All
- Specification: All
- Actor: All
- Test suite: All
- Test case: All

Search items...

- ☐ CPSV-AP
- ☐ eInvoicing

Active test sessions:

- System: All
- End time: 04-2024
- Session: [Empty]

Completed test sessions:

Specification	Actor	Test case	System	Start time	End time	Result
eInvoicing	Invoice Provider	TC1: Upload valid invoice	Demo system	09-04-2024 08:58:13	09-04-2024 08:58:39	✗
CPSV-AP	EU Portal	COS-HARVESTER-1 test case 1	Demo system	09-04-2024 08:55:23	09-04-2024 08:55:38	✗

Footer:

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Conformance dashboard (administrator)

The screenshot displays the 'Conformance dashboard' for an administrator. The interface includes a sidebar with navigation icons, a main content area with filters, and a list of conformance statements.

Conformance dashboard

Home > Conformance dashboard

Conformance statements

Latest conformance status View per organisation

Demo account community Demo organisation Demo system Search statements... Show statements... Download report

Demo domain

- Core Public Service Vocabulary Application Profile (CPSV-AP)** 09-04-2024 08:55:38 0 ✓ 1 ✗ 0 ⓘ 100.0%
View statement View system View specification Download report
- COS-HARVESTER-1** Test suite that simulates the collection of public service metadata from National endpoints (FI and EE) and their exposure as CPSV-AP.
COS-HARVESTER-1 test case 1 multi-step 09-04-2024 08:55:38 ⓘ ⓘ ⓘ ⓘ
- Electronic invoicing** 09-04-2024 08:58:39 0 ✓ 1 ✗ 0 ⓘ 100.0%
View statement View system View specification Download report
- Electronic invoice validation** Test suite addressing basic tests in electronic invoicing using the UBL 2.1 specifications.
TC1: Upload valid invoice xml validation 09-04-2024 08:58:39 ⓘ ⓘ ⓘ ⓘ

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