



EUROPEAN COMMISSION

DIGIT  
Connecting Europe Facility

# **CEF eSignature**

## **esig-validation-tests**

Version 2.0

### **User guide**

**Reference documents:**

Reference	Document	Date	Version
QES V-A	<a href="#">Qualified electronic signature (QES) validation algorithm</a>	09/2019	1.0.3
EN 319 102-1	Electronic Signatures and Infrastructures (ESI); Procedures for Creation and Validation of AdES Digital Signatures; Part 1: Creation and Validation	05/2016	1.1.1

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## PURPOSE AND APPROACH OF THE DOCUMENT

In order to help third parties to validate their implementation of eIDAS requirements regarding electronic signature, the CEF eSignature building block is proposing to publish validation test cases.

As a first step, the focus is on the validation of qualified electronic signatures (QES) according to the *guidelines* “Qualified electronic signature (QES) validation algorithm” document [QES V-A] and the related standards (<https://ec.europa.eu/cefdigital/wiki/display/CEFDIGITAL/Standards+and+specifications>).

As a next step, the focus will be to implement more QES as well as AdES test cases [EN 319 102-1].

The structure of the document is the following:

First the presentation of the test cases, then a presentation of the web application itself, finally an explanation on how to use and integrate the test cases in a third-party solution.

The targeted audience of esig-validation-tests is the eSignature solution implementers already aware of the QES validation algorithm and previously quoted standards.

# 1. QES TEST CASES

A qualified electronic signature is an advanced electronic signature which is additionally:

- Created by a qualified signature creation device;
- And is based on a qualified certificate for electronic signature.

Qualified certificates for electronic signatures are provided by (public and private) providers which have been granted a qualified status by a national competent authority as indicated in the national 'trusted lists' of the EU Member State.

Taking this into account and based on the validation algorithm guidelines [QES V-A], a list of tests cases has been identified to allow eSignature solution implementers to validate their solutions.

For each of those test cases, signed document, related trusted list and his root of trust (LOTL and trust anchors) are needed.

The identified test cases differ by the variation of the qualified aspect of the certificates, the trust service entries content, and the quality of the trusted list.

Conclusion	Test case description	sigCert (signing certificate content)	TL (trusted list content)	Fake LOTL / TL entries
<b>Processing the Tls</b>				
AESig w/ warning	2.11 TL signature is not authorized, TL is ignored	QC eSig QSCD	catching CAOC eSig	LOTL-2 TL-21 TSP-2.1 TSP-2.11 SDC1.11
AESig w/ warning	2.12 TL signature expired before, TL is ignored	QC eSig QSCD	catching CAOC eSig	TL-22 TSP-2.1 TSP-2.11 SDC1.12
QESig w/ warning	2.13 TL has expired (NameUpdate)	QC eSig QSCD	catching CAOC eSig	TL-23 TSP-2.1 TSP-2.13 SDC1.13
AESig w/ warning	2.14 TL is temporarily unavailable, use version in cache	QC eSig QSCD	catching CAOC eSig	TL-24 TSP-2.1 TSP-2.14 SDC1.14
<b>Matching SDI + SuiA/SI + status</b>				
<b>3.1 0 matching service</b>				
AESig	3.11 No matching SDI	QC eSig QSCD	not catching CAOC eSig	LOTL-3 TL-3 TSP-3.1 TS-3.11 SDI-3.11
AESig	3.12 No matching CAQC	QC eSig QSCD	catching CAQC eSig	TS-3.12 SDI-3.12
AESig	3.13 No matching SuiA/SI	QC eSig QSCD	catching CAQC eSeal	TS-3.13 SDI-3.13
AESig	3.14 Withdrawn	QC eSig QSCD	catching CAQC eSig	TS-3.14 SDI-3.14
AESig	3.15 Suspension ceased/... before eIDAS	QC eSig QSCD	catching CAQC	TS-3.15 SDI-3.15
AESig	3.16 Accreditation revoked/... before eIDAS	QC eSig QSCD	catching CAQC	TS-3.16 SDI-3.16
<b>3.2 1 matching service</b>				
QESig	3.2.1 Standard case	QC eSig QSCD	catching CAQC eSig eSeal	TSP-3.2 TS-3.2.1 SDI-3.2.1
QESig w/ warning	3.2.2 No matching TSP Name / trade name	QC eSig QSCD	catching CAQC eSig	TS-3.2.2 SDI-3.2.2
<b>3.3 Incoherences in TL</b>				
error	3.3.1 Several entries matching (simple case)	QC eSig QSCD	catching CAQC eSig	TSP-3.3 TS-3.3.1 SDI-3.3.1
<b>QC / notQC</b>				
<b>4.1 notQC based on sigCert content</b>				
AESig	4.1.1 sigCert not declared as QC	eSig QSCD	catching CAQC eSig	TL-4 TSP-4.1 TS-4.11 SDI-4.11
QESig	4.1.2 Cert policy before eIDAS	eSig QCP+	catching CAQC eSig	TS-4.12 SDI-4.12
QESig	4.1.3 Cert policy before eIDAS	eSig QSCD QCP	catching CAQC eSig	TS-4.13 SDI-4.13
AESig-QC	4.1.4 Cert policy before eIDAS	eSig QCP	catching CAQC eSig	TS-4.14 SDI-4.14
AESig	4.1.5 Cert policy after eIDAS	eSig QCP	catching CAQC eSig	TS-4.15 SDI-4.15
AESig	4.1.6 Cert policy after eIDAS	eSig QCP+ QCP+	catching CAQC eSig	TS-4.16 SDI-4.16
QESig	4.1.7 Cert policy before eIDAS, QCP and QCP+	eSig QCP+	catching CAQC eSig	TS-4.17 SDI-4.17
<b>4.2 Override to notQC by SuiA/SI in TL</b>				
AESeal	4.2.1 Catching	QC eSeal	catching CAQC eSeal	TSP-4.2 TS-4.2.1 SDI-4.2.1
AESig-QC	4.2.2 Not catching because of type	QC eSig	catching CAQC eSeal	TS-4.2.2 SDI-4.2.2
AESig-QC	4.2.3 Not catching because of criteria	QC eSig	catching CAQC eSig	TS-4.2.3 SDI-4.2.3
<b>4.3 Override to QC by SuiA/SI in TL</b>				
AESig-QC	4.3.1 Catching, although sigCert content is notQC	eSig	catching CAQC eSig	TSP-4.3 TS-4.3.1 SDI-4.3.1
AESeal	4.3.2 Not catching because of type	eSeal	catching CAQC eSig	TS-4.3.2 SDI-4.3.2
AESeal	4.3.3 Not catching because of criteria	eSeal	catching CAQC eSeal	TS-4.3.3 SDI-4.3.3

## QES test cases – Set of identified test case

NOTE: The entire excel file can be download from the application

## 2. APPLICATION

### 2.1. Overview

The screenshot shows the 'EU Trust Services Dashboard' for 'eSignature validation test cases'. The page includes a navigation bar with 'DISCOVER', 'BROWSE', and 'TRY' options, and an 'EU LOGIN' button. The main content area is titled 'eSignature validation test cases' and contains several paragraphs of text explaining the purpose of the test cases, the focus on qualified electronic signatures and seals based on trusted lists (TLs), and the automatic generation of 'fake' TLs, certificates, and signed documents. It also provides links for a user guide and a detailed description of all test cases.

**Test cases LOTL-2**

Test cases LOTL-3

**Trusted lists**

The LOTLs and referred TLs used for this test case are available online via the following URLs:

- LOTL-2** <http://192.168.87.22:8085/efda/validation-tests/testcase/tl/LOTL-2>
- TL-21** <http://192.168.87.22:8085/efda/validation-tests/testcase/tl/TL-21>
- TL-22** <http://192.168.87.22:8085/efda/validation-tests/testcase/tl/TL-22>
- TL-23** <http://192.168.87.22:8085/efda/validation-tests/testcase/tl/TL-23>

**Test case description**

LOTL-2 [Download test cases](#)

**2. Processing the TLs**

- None

### esig-validation-tests – home page

The web application esig-validation-tests is constituted of one page and two tabs entries.

Documentation:

- User guide: present document
- QES test cases: "QES test cases" excel file

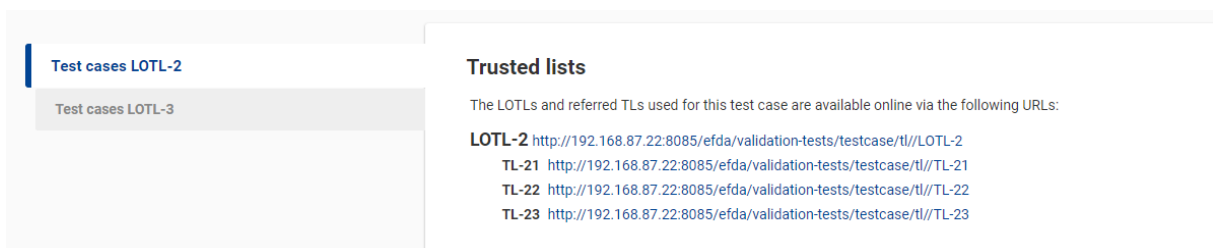
## 2.2. Trusted lists

Owing to the complexity of eIDAS regulation, esig-validation-tests has to provide “fake” LOTLs and “fake” TLs conform to the standard in order to allow the implementation of valid QES.

All the test cases cannot be represented through a unique LOTL and a unique TL that’s why the application manages multiples ones.

The trusted lists are **hosted** by the application and should not be downloaded to be hosted locally due to the URLs inside the trusted lists (pointer location, ...).

The LOTL and the TLs can be found at the top of each tab entry (hyperlinks).



The screenshot shows a web application interface. On the left, there is a sidebar with two tabs: 'Test cases LOTL-2' (selected) and 'Test cases LOTL-3'. The main content area is titled 'Trusted lists' and contains the following text: 'The LOTLs and referred TLs used for this test case are available online via the following URLs:'. Below this, there is a list of URLs for LOTL-2, TL-21, TL-22, and TL-23.

**Trusted lists**

The LOTLs and referred TLs used for this test case are available online via the following URLs:

- LOTL-2** <http://192.168.87.22:8085/efda/validation-tests/testcase/tl//LOTL-2>
- TL-21** <http://192.168.87.22:8085/efda/validation-tests/testcase/tl//TL-21>
- TL-22** <http://192.168.87.22:8085/efda/validation-tests/testcase/tl//TL-22>
- TL-23** <http://192.168.87.22:8085/efda/validation-tests/testcase/tl//TL-23>

### LOTLs and TLs

## 2.3. Test cases

The test cases and related elements (LOTJs, TLs, certificates and keystores) are automatically renewed and does not requires any manipulation from third party.

Following the “QES test cases” excel file document, there is three level of aggregation in the test cases:

- LOTL
  - ⇒ The test cases are grouped by LOTL in order to facilitate the integration and to minimize the configuration required for the running of these.
  - Category
    - Sub-category
      - ⇒ The test cases are classified in categories and sub-categories which refer to the certificates content/trust services implementation that can be carry out based on the excel file.

The *test cases packages* can be downloaded by LOTL, via the test cases tab entries, or together, via the descriptive text of the tool.

**eSignature validation test cases**

The eSignature validation test cases have been set up in order to help anyone testing an eSignature validation implementation (software providers, trust service providers, conformity assessment bodies, supervisory bodies, ...).

The test cases currently focus on the validation of the 'qualification part' of qualified electronic signatures and seals based on trusted lists (TLs), that is excluding the specific test cases related to the validation of an advanced electronic signature or seal according to ETSI EN 319 102-1.

For that purpose, 'fake' TLs, List of Trusted Lists (LOTJs), certificates and signed documents are generated automatically, and refreshed on a regular basis.

More information can be found in the [user guide](#). The certificates and signed documents used for the test cases can individually be downloaded below or can together be downloaded [here](#). Detailed description of all test cases can be downloaded [here](#).

Should you identify missing test cases, or errors in existing ones, please don't hesitate to give us a feedback via the eSignature Service Desk.

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**Test cases LOTL-2**

Test cases LOTL-3

**Trusted lists**

The LOTJs and referred TLs used for this test case are available online via the following URLs:

**LOTL-2** <http://192.168.87.22:8085/efda/validation-tests/testcase/tl/LOTL-2>  
**TL-21** <http://192.168.87.22:8085/efda/validation-tests/testcase/tl/TL-21>  
**TL-22** <http://192.168.87.22:8085/efda/validation-tests/testcase/tl/TL-22>  
**TL-23** <http://192.168.87.22:8085/efda/validation-tests/testcase/tl/TL-23>

**Test case description**

LOTL-2: [Download test cases](#)

2. Processing the TLs

1. None

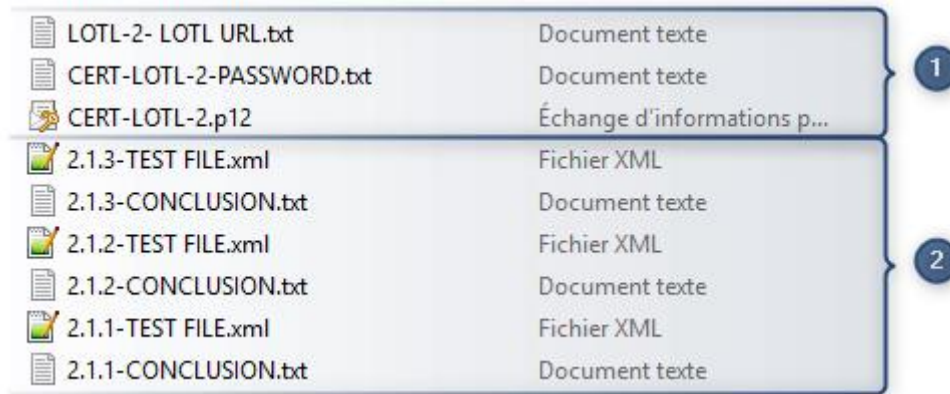
### Test cases page – package download



### 3. TEST CASES PACKAGE AND INTEGRATION

#### 3.1. LOTL: Test cases package

A **LOTL test cases package** include the LOTL configuration files, the signed test files and the QES validation conclusions, as illustrated on the following screenshot of the “LOTL-2” test cases package:



**LOTL-2 Content of the package**

The filenames follow a naming convention based on %LOTL\_ID% and %TEST\_CASE\_ID%.

##### LOTL Configuration files

- The LOTL URL
 

Name	%LOTL_ID%- LOTL URL.txt
------	-------------------------
- The LOTL keystore that contains the certificate used to sign the LOTL
 

Name	CERT-%LOTL_ID%.p12
------	--------------------
- The LOTL keystore password that contains the password to read and access the keystore
 

Name	%LOTL_ID% - LOTL URL.txt
------	--------------------------

##### The signed test files and the QES validation conclusions

- The signed test files
 

Name	%TEST_CASE_ID%-TEST FILE.xml
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- The QES validation conclusions
 

Name	%TEST_CASE_ID%-CONCLUSION.txt
------	-------------------------------

### 3.2. FULL: Test cases package

The FULL *test cases package* includes all the LOTL *test cases packages* in a unique zip file. The content of the LOTL *test cases package* are the same as described in the previous step of the guide.

### 3.3. Integration

As a third party, you need to:

- Download a *test cases package*.
- Retrieve the LOTL configuration files and configure the eSignature validation solution with them:
  - o Location that contains the URL of the LOTL.
  - o Keystore and keystore password that contains the signing certificate used to validate the signature of the LOTL.
- Retrieve the list of signed test files and QES validation conclusions.