Technical Report of the ASiC Remote Plugtests™ Event (Nov-Dec 2012)

Reference

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650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
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This version:

Author:

Andrea Caccia, Knowledge Work andrea.caccia@studiocaccia.com
Juan Carlos Cruellas, UPC cruellas@ac.upc.edu
Konrad Lanz, A-SIT Konrad.Lanz@iaik.tugraz.at
Laurent Velez, ETSI laurent.velez@etsi.org

Editor:

Laurent Velez, ETSI laurent.velez@etsi.org

Abstract

This document is the external report of the 2012 Remote Plugtests Event on ASiC (Associate Signature Container ETSI TS 102 918), organized by ETSI Centre of Testing and Interoperability (CTI) conducted using the ETSI portal supporting remote interoperability Plugtests.

For Non Disclosure Agreement reason, the report does not list the results of each testcases. It only shows the overall and anonymous statistics, without link to the company names.

Status of this Document

This document is provided by ETSI Centre of Testing and Interoperability (CTI). For further details on Plugtests services, please see: http://www.etsi.org/Website/OurServices/Plugtests/home.aspx .

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1 Introduction

In answer to the European Commission Mandate 460 on Electronic Signatures Standardization, ETSI has initiated several Specialist Task Forces projects (STF). The STF 428 addressed the needs of Testing activities be performed rapidly leading to a quick and easy improvement of the functionality of the existing e-Signature standardization deliverables, bringing them up to date with current practices. One of the purposes of the STF 428 was to prepare a first interoperability test event on ASiC (Associated Signature Container ETSI TS 102 918) signatures. This preparation includes:

- The production of the whole test suite
- The production of all the material documenting how to conduct the interoperability event
- The deployment in the ETSI portal of the suitable PKI and tools required for supporting the interoperability test event conduction

Following the STF 428, ETSI has organized the first remote Plugtests^{TM} event on ASiC , held from Monday 19th November to Friday 21st December 2012.

The present document aims at reporting the 2012 remote Plugtests^{TM} Event on ASiC Signatures.

The document also provides details on the specification, design and implementation of the portal supporting remote Plugtests^{TM} events on ASiC specification, including an overview of the contents of the portal as well as the on-line PKI-related services provided to the participants of the ASiC Remote Plugtests.

The present report provides details on:

- Specification, design and implementation of those testcases description, including cross-verification and negative testcases for ASiC signatures.

- The Remote Plugtests^{TM} Event on ASiC organized by ETSI and held from Monday 19th November to Friday 21st December 2012. The event was initially planned until 7th December but it has been extended to 21st December on requests from the participants. The reason was that the amount of testing activities was extremely high within the initial scheduled period, due to big number of participants and the number of test descriptions proposed.

The present document is organized as indicated below.

Section 2 provides details on how the material of the portal is organized and the kind of services it provides to the participants of the Plugtests^{TM} Events.

Section 3 lists the participants to the 2012 ASiC Remote Plugtests^{TM} Event.

Section 4 provides an overview of the most interesting results and conclusions of the Plugtests.

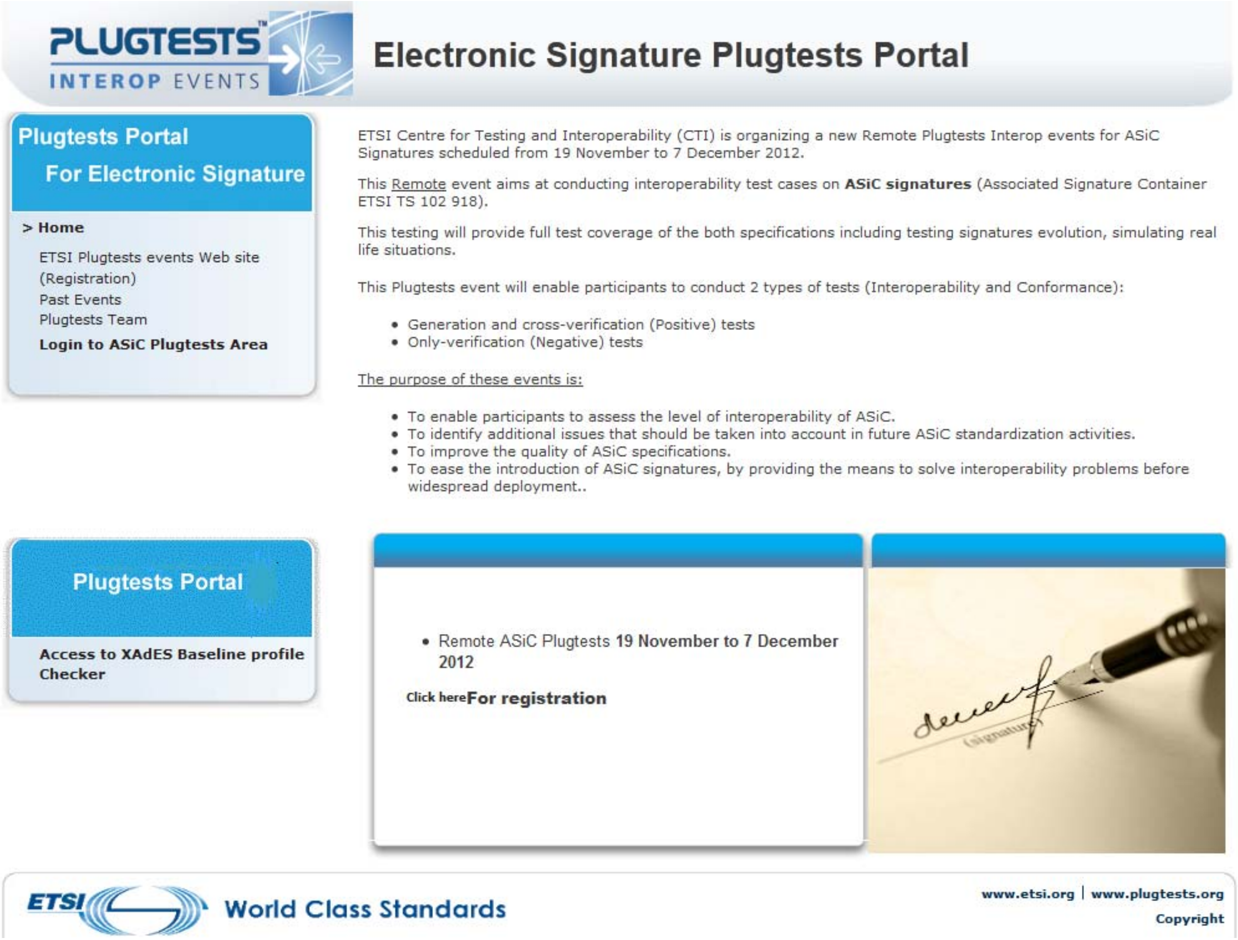
Section 5 provides details on a number of issues related to the ASiC specification as identified by the participants. These issues have been raised to the ETSI TC ESI requesting to take them into consideration for future ASiC standardization activities.

Section 6 shows the interoperability matrixes for the test-cases that were defined for the Plugtests event, and for ASiC specifications.

2 Organization and contents of the portal

The portal has two different parts, namely one public part, that anybody may visit, and a private part accessible only for the participants subscribed to the Plugtests event.

2.1 Public part of the portal


PLUGTESTS
INTEROP EVENTS
Electronic Signature Plugtests Portal
Plugtests Portal
For Electronic Signature
> Home
ETSI Plugtests events Web site
(Registration)
Past Events
Plugtests Team
Login to ASiC Plugtests Area
Plugtests Portal
Access to XAdES Baseline profile Checker
ETSI World Class Standards
www.etsi.org | www.plugtests.org
Copyright

ETSI Centre for Testing and Interoperability (CTI) is organizing a new Remote Plugtests Interop events for ASiC Signatures scheduled from 19 November to 7 December 2012.

This Remote event aims at conducting interoperability test cases on **ASiC signatures** (Associated Signature Container ETSI TS 102 918).

This testing will provide full test coverage of the both specifications including testing signatures evolution, simulating real life situations.

This Plugtests event will enable participants to conduct 2 types of tests (Interoperability and Conformance):

- Generation and cross-verification (Positive) tests
- Only-verification (Negative) tests

The purpose of these events is:

- To enable participants to assess the level of interoperability of ASiC.
- To identify additional issues that should be taken into account in future ASiC standardization activities.
- To improve the quality of ASiC specifications.
- To ease the introduction of ASiC signatures, by providing the means to solve interoperability problems before widespread deployment..

- Remote ASiC Plugtests **19 November to 7 December 2012**

Click here**For registration**

As mentioned above, this part remains as it was for previous events. It includes the following contents:

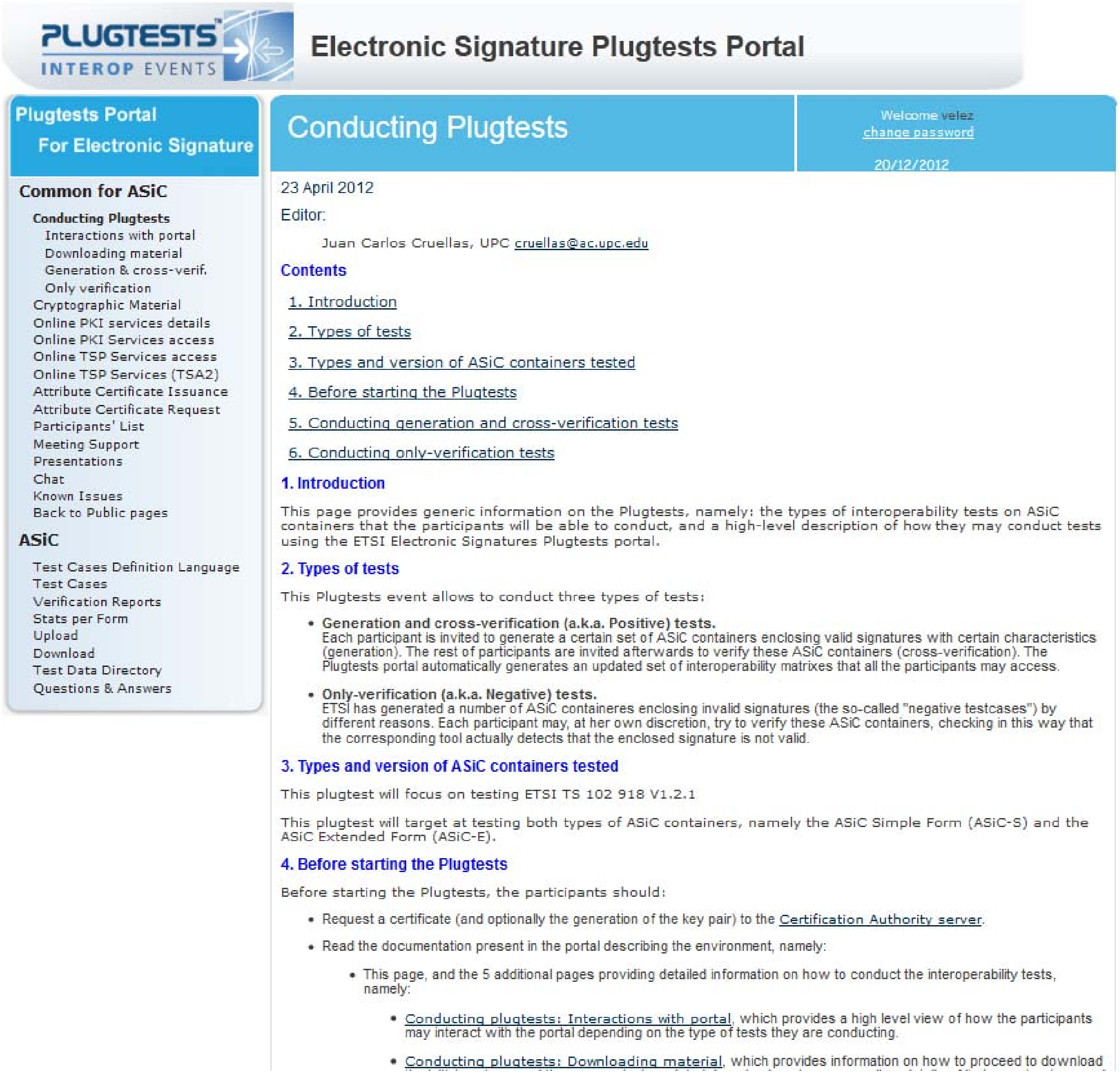
- The ASiC Plugtests page, providing some more details on the event itself, namely targetted specification, targetted audience, some general info on how to conduct such event, etc.
- The Mailing List page, providing some details on **public** mailing list support provided by the portal for facilitating exchange of information.
- The Registration page, providing details on the Plugtests registration process.
- The Presentation of the Plugtests team.
- The Presentation of some past events (XAdES, CAdES, PAdES)
- The **Login to Plugtests Area** page gives access to the **protected area** of the portal.

2.2 Private part of the portal

This part is visible only for the participants of the Plugtests event. It is structured in three main areas:

- **Common area**. This area contains a number of pages that provide generic information to the participants, which is relevant to participants of ASiC interoperability tests.
- **ASiC specific area**. This area contains a number of pages that support the interoperability tests on PAdES.

Sub-clauses below provide details of the contents of these pages.



Conducting Plugtests

23 April 2012

Editor:

Juan Carlos Cruellas, UPC cruellas@ac.upc.edu

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2. Types of tests

3. Types and version of ASiC containers tested

4. Before starting the Plugtests

5. Conducting generation and cross-verification tests

6. Conducting only-verification tests

1. Introduction

This page provides generic information on the Plugtests, namely: the types of interoperability tests on ASiC containers that the participants will be able to conduct, and a high-level description of how they may conduct tests using the ETSI Electronic Signatures Plugtests portal.

2. Types of tests

This Plugtests event allows to conduct three types of tests:

- **Generation and cross-verification (a.k.a. Positive) tests.**
  Each participant is invited to generate a certain set of ASiC containers enclosing valid signatures with certain characteristics (generation). The rest of participants are invited afterwards to verify these ASiC containers (cross-verification). The Plugtests portal automatically generates an updated set of interoperability matrixes that all the participants may access.
- **Only-verification (a.k.a. Negative) tests.**
  ETSI has generated a number of ASiC containeres enclosing invalid signatures (the so-called "negative testcases") by different reasons. Each participant may, at her own discretion, try to verify these ASiC containers, checking in this way that the corresponding tool actually detects that the enclosed signature is not valid.

3. Types and version of ASiC containers tested

This plugtest will focus on testing ETSI TS 102 918 V1.2.1

This plugtest will target at testing both types of ASiC containers, namely the ASiC Simple Form (ASiC-S) and the ASiC Extended Form (ASiC-E).

4. Before starting the Plugtests

Before starting the Plugtests, the participants should:

- Request a certificate (and optionally the generation of the key pair) to the Certification Authority server.
- Read the documentation present in the portal describing the environment, namely:
  - This page, and the 5 additional pages providing detailed information on how to conduct the interoperability tests, namely:
    - Conducting plugtests: Interactions with portal, which provides a high level view of how the participants may interact with the portal depending on the type of tests they are conducting.
    - Conducting plugtests: Downloading material, which provides information on how to proceed to download

2.2.1 Contents of Common area of Private part

2.2.1.1 Conducting Plugtests information pages

The Conducting Plugtests page is the first of a set of six pages providing detailed explanations on how to conduct interoperability and conformance tests on ASiC during this event.

This first page details the 2 types of tests provided at this Plugtests event:

□ Generation and cross-verification (a.k.a. Positive) tests.
Each participant is invited to generate a certain set of valid ASiC container with certain characteristics (generation). The rest of participants are invited afterwards to verify these signatures (cross-verification). The Plugtests portal automatically generates an updated set of interoperability matrixes that all the participants may access.

□ Only-verification (a.k.a. Negative) tests.
ETSI has generated a number of invalid ASiC signatures (the so-called "negative testcases") by different reasons. Each participant may, at her own discretion, try to verify these signatures, checking in this way that the corresponding tool actually detects that the signature is not valid.

This section also provides details on the versions of ASiC specifications:

- ASiC ETSI TS 102 918 V1.2.1

This plugtest will target at testing both types of ASiC containers, namely the ASiC Simple Form (ASiC-S) and the ASiC Extended Form (ASiC-E).

- ETSI ASiC Test Suite Specification for interoperability TS 119 164-1

It also provides high level description of the steps that participants must perform for conducting the three different types of interoperability tests aforementioned and the Conformance checker tool.

The rest of pages of the set provide details on:

- How to download material from the portal for starting conducting the Plugtests (**Downloading material page**). This material is usually a zip file enclosing a well defined folder structure containing both signatures and verification reports on signatures.
- How to generate ASiC signatures and to upload them to the corresponding section of the portal so that the rest of participants at the interoperability tests may download and verify them (**Generating Signatures page**).
- How to verify other participants' signatures, report on verification results and uploading of these reports to the portal so that the portal keeps track of the current status of the Plugtests (**Verifying Signatures page**).

2.2.1.2 Cryptographic material pages

The Cryptographic Material page is the first one of a set of three pages providing details on the cryptographic material that the participants have to deal with while conducting the Plugtests and also on the trust frameworks specified for this Plugtests event.

This cryptographic material consists in:

➢ P12 files containing private keys and their corresponding certificates for generating and verifying test cases signatures.

➢ Certificate files containing the CA certificates up to a trust anchor represented by the root CA (Root_CA_OK). These certificates will be published in the LDAP server (details for accessing to the

LDAP server may be found in the Online PKI services details page) and in the HTTP server deployed in the plugtest portal.

- CRLs issued by the CAs operating in the plugtest trust frameworks. These CRLs will be re-issued several times during the plugtest with a certain periodicity, so that all of them are up to date. The CRLs will be published in the LDAP server and in the HTTP server deployed in the plugtest portal.

- The certificate for the Time-stamping server issued by Root_CA_OK. As above, this material will be published in the the LDAP server and in the HTTP server deployed in the plugtest portal.

The portal deployed trust frameworks for this plugtests, allowing different scenarios.

 Scenarios under RootCAOK (aka. Root_CA_OK in the images) as Root CA. This framework will be used for conducting tests on ASiC containers using signing certificates and time-stamp tokens issued by only one Root. For this trust framework, two three scenarios have been defined:

1. **Scenario SCOK (RootCAOK->LevelACAOK->LevelBCAOK->EE_OK)** . Participants will use its cryptographic material for both generating and verifying the signatures corresponding to the **generation and cross-verification** test cases. In this scenario all the certificates managed during the generation and verification of the signature, including the end-entities certificates issued by the CA deployed in the portal to the participants, are valid.

2. **Scenario SC11 (RootCAOK->LevelACAOK->LevelBCAOK->(EE_R | EE_EXP)** . Participants will use its cryptographic material only for verifying signatures pre-generated by ETSI corresponding to the **only-verification** tests cases. In this scenario, ETSI will include a pre-generated signing certificate, which by the time the plugtest will start **will be revoked**, and also a pre-generated signing certificate, which by the time the plugtest will start **will be expired**. The CA issuing both certificates (**Level_B_CA_OK**) will issue the CRLs including references to the revoked certificate. This CA will also generate OCSP responses reporting on the status of these certificates whenever it is requested by the participants. ETSI will generate one ASiC container using the revoked certificate and another one using the expired certificate. This scenario is intended to check implementations behaviour when verifying not valid signatures, which will be provided by the ETSI portal.

2. **Scenario SC12 (RootCAOK->LevelACAOK->LevelBCA_R->EE_OK)** . Participants will use its cryptographic material only for verifying signatures pre-generated by ETSI corresponding to the **only-verification** tests cases. In this scenario, ETSI will include a pre-generated signing certificate, which by the time the plugtest will start **will be issued by the revoked intermediate LevelBCA_R**. The CA issuing the certificate (**LevelACAOK**) will issue the CRLs including references to the revoked certificate. This CA will also generate OCSP responses reporting on the status of these certificates whenever it is requested by the participants. ETSI will generate one ASiC container using the revoked certificate. This scenario is intended to check implementations behaviour when verifying not valid signatures, which will be provided by the ETSI portal.

Each CA also provided **OCSP** responses reporting the status of the certificates issued by that CA. In addition to that, each CA issued **CRLs** reporting the revoked certificates.

The portal also includes a **Timestamping Authority** able to generate time-stamp tokens on request by the participants.

2.2.1.3 Online PKI-related services page

The Plugtests portal incorporates a number of online PKI-related services.

The **Online PKI services details page** describe all of them and provides details on how the participants may access them.

The on-line PKI-related services deployed are listed below:

- **CA-related services**. This service provides issuance of certificates; generation of CRLs; publication of CRLs. Participants should use this service for getting their corresponding certificates for generating ASiC signatures.
- **Time-stamp Authority server**. This server generates RFC 3161 time-stamp tokens as per request of the participants in the plugtest.
- **OCSP responders**, which are able to generate OCSP responses to OCSP requests submitted by the participants on the status of a certain certificate generated by the ETSI portal infrastructure. During this Plugtest, these OCSP responders will actually be the CAs issuing certificates (Direct Trust Model).
- **LDAP server**. This server acts as central repository for CA and TSA certificates, and CRLs.
- **Http server.** This server acts as alternative central repository for CA and TSA certificates, and CRLs.

This page also contains a link to a Java class implementing basic login/password authentication mechanism required for accessing these services, so that participants had not to develop such a mechanisms in their tools.

2.2.1.4 Online PKI services access page

The Online PKI Services access page allows to access to most of the on-line PKI-related services provided by the portal, namely: access to the CA software for requesting generation of a key-pair an the corresponding end-entity certificate for generating signatures, connection details for accessing the LDAP server where CRLs and CA certificates are stored, etc.

2.2.1.5 Online TSA services access page

The Online TSP Services access page allows to access to the TSA server deployed in the server for requesting generation of time-stamp tokens.

2.2.1.6 Attribute certificate issuance page

This tool is available in case the participants need X509 V2 attribute certificate ([RFC3281]) for their signing public key certificate. The private key and certificate of the attribute authority which issues your attribute certificate can be found in the CryptographicMaterial.

Thus the participants can issue their own attribute certificate for themselves by some security toolkits. However the Plugtests service can also issue the attribute certificate if participants need. The portal has integrated a tool allowing participants to upload their X509 certificates and generate the corresponding attribute certificates (‘Attribute Certificate Request’ section on the left menubar)

2.2.1.7 Participants’ List page

This page lists the details of all the companies and people that participated in the Plugtests™ as well as their emails and login name.

2.2.1.8 Meeting Support page

The Meeting Support page contains all the information related to the meetings that took place during the Plugtests event. It includes:

- Introduction presentation. This presentation was made available before the start of the Plugtests^{TM}, and it provides the most relevant information on the event, including structure of the portal, relevant URLs, rules to be followed during the participation, etc

- Calendar for the meetings (Gotowebinar conference calls).

- URL for accessing a chat server accessible through a Web browser were the calls were minuted and participants could write their comments, questions and statements.

- The agenda for each meeting.

- Links to the minutes of each meeting.

2.2.1.9 Mailing list

A Electronic mail list with archival capabilities, whose use was restricted to the participants in the Plugtests^{TM}, was set up for supporting exchange of messages among them. This was the main medium for putting questions to the Plugtests^{TM} support team and initiating technical discussion between participants

After each upload of signatures or verifications, an email is sent to all participants via this mailing list to inform them. So the participants are notified each time that a company has performed an upload with the related content.

2.2.1.10 Chat page

The Chat page provides access to a web-based chat that participants use during the conference calls for sharing notes. It is also used for taking notes of the meetings. These notes are the core component of the meetings minutes.

2.2.1.11 Known issues pages

This page lists all the known issues of the portal waiting their resolution by the Plugtests support team.

2.2.2 Contents of ASiC Interop Specific areas of Private part

The portal contains, within the private part of the portal, a specific area for ASiC specification that is tested in this Plugtests^{TM}.

2.2.2.1 Test Cases Definition Language

These pages describe the structure of an ASiC test case definition. It is intended to be a simple and straight forward way to define all necessary inputs for the creation of a ASiC signature.

2.2.2.2 Test Cases pages

These are pages containing documents with the complete specification of the test cases for ASiC specification.

The documents are written in XML and incorporate XSLT stylesheets and javascript technologies. These technologies allow:

- To browse the aforementioned test definition documents and to build pieces of text and tables corresponding to each test case within this document.

- To browse reports of verification (simple XML documents) of each single ASiC signature verified by each participant, process them and keep up to date the interoperability matrixes, which show what signatures of each participant have been verified by what other participants and the results of such verifications.

The ASiC test case document actually incorporates the whole set of interoperability matrixes resulting from the uploading of the participants of their verification report. It is worth to mention that XSLT and javascript technologies allow that each time a participant uploads a set of signatures and/or verification reports, the interoperability matrixes shown within the ASiC test case document, are updated, so that participants always see the up to date information on interoperability tests carried so far.

2.2.2.3 Individual verification reports

The ASiC area contains a page where each participant may find its own interoperability matrixes, i.e. matrixes that report the verification results obtained by the rest of the participants after trying to verify each of his/her signatures.

These matrixes include links to the signature files and to the verification report files, as well an indication of the verification result.

Each participant access from the main page of the portal to her own verification reports page, and from there, each participant may directly access to the verification reports pages of the rest of the participants.

2.2.2.4 Statistics per signature form

The Statistics page contains 3 tables that summarize the number of ASiC signatures generated and verified at each instant of the Plugtests^{TM}.

The tables show per company how many signatures of a certain ASiC form have been generated or verified, and also and the number of verified negative testcase signatures..

2.2.2.5 Upload pages

The ASiC area contains a page that participants use for uploading their signatures and / or verification reports.

The Upload pages provide mechanisms for uploading new signatures, new verification reports or both.

Once uploaded, the portal re-builds a new downloading package in the ASiC area and makes it available for all the participants at the Download page. Within this package, participants will find all the signatures and verification reports generated up to that instant in the Plugtests. It is way to archive all the different uploads and keep a complete history of the Interop testing of the event.

As it has been already mentioned, the upload of a package has the immediate effect of updating the corresponding interoperability matrixes and the individual verification reports within the suitable specific area.

2.2.2.6 Download pages

The ASiC area contains a page that participants use for downloading the corresponding initial package that includes cryptographic material, test-definition files, and a folder structure suitable for uploading signatures and verification reports).

These pages are also used for downloading the whole material generated by the participants at a certain instant of the Plugtests^{TM}, including all the ASiC signatures and verification reports generated so far.

2.2.2.7 Test data directory pages

The page is used by the participants for browsing the folders structure where the portal stores the ASiC signatures and the verification files generated by all the participants.

This allows a detailed inspection of the files uploaded in a certain instant to the portal.

3 Participants list

The table below shows the details of all the organizations and persons that have participated in the 2012 ASiC Remote Plugtests^{TM} Event.

There have been **17 different organizations** and 26 people participating in the event. 13 companies/organizations with implementations and 4 companies from the Plugtests^{TM} support team

Company	Acronym	First Name	Surname
Aktsiaselts Sertifitseerimiskesku (Estonia)	AS	Raul	Metsma
		Jaan	Murumets
Aron Szabo (Hungary)	SZA	Aron	Szabo
Cryptotolog (France)	CRY	Moez	Ben MBarka
		Khadija	Ferjani
		Sébastien	Henaff
		Jean-Christophe	Sirot
DICTAO (France)	DIC	Mehdi	Ben Abdallah
European Commission	EC	Anneli	Andresson-Bourgey
		David	Naramski
ETSI	ETSI	Aurélie	Sfez
		Laurent	Velez
IAIK (Austria)	IAIK	Konrad	Lanz
Knowledge Work (Italy)	KW	Andrea	Caccia
Microsec (Hungary)	MIC	Balazs	Czekmany
MIT-SOFT (Lithuania)	MIT	Adomas	Birštunas
National Security Authority (Slovak Republic)	NSA	Peter	Rybar
NTT Secure Platform Labs (Japan)	NTT	Hidetaka	Ishimoto
		Shinichi	Nakahara
		Tomoyuki	Okazaki
		Masanao	Yoshida
Polysys (Hungary)	POL	Agnes	Juhasz

Software602 (Czech Republic)	SIX	Jakub	Zemlicka
Tubitak Uekae (Turkey)	TUB	Ali Yavuz	Kahveci
Universitat Politècnica de Catalunya (Spain)	UPC	Juan Carlos	Cruellas
Unizeto (Poland)	UNI	Robert	Hospodarysko

4 Plugtests conclusions

4.1 Remote vs. Face to Face

ETSI CTI reinforces its opinion on the usefulness of Remote Plugtests^{TM} as a way of reducing costs to participants.

With 17 companies/organizations from Europe and Japan participating, that would have been difficult to organise in a face to face event

4.2 Communication supporting technologies

The utilization of Web conference (GotoWebinar) has been very appreciated by participants. It has allowed the participants to get very interactive conferences, by sharing the same document or application. At the welcome meeting, the team explained how to conduct the testing by making a real case demo.

The chat of the portal has also been very important for the participants to write their questions or request and also it has been used as meeting minutes.

4.3 Event duration

Initially, 3 weeks of testing have been planned for this event, starting from 19th November to 7th December 2012.

In order to let participants read all the documentations and prepare the testing, ETSI has opened the portal 2 days before the official beginning of the interoperability event.

Moreover, for this event, 13 companies were registered, testing 13 implementations. As each company has to verify the signature of the other ones, the time needed increases with the amount of companies. 3 weeks were definitely too short.

For this reasons, the Plugtests team has decided to extend the duration of the event until the 21st December 2012.

5 ASiC related Issues

The present section lists some of the issues raised during the conduction of the ASiC Plugtests ™ Event in 2012 that will lead to an updated version of the mother specification:

1) The right schema identifier in ASiCManifest is "http://uri.etsi.org/02918/v1.2.1#" (including "0" in "02918").
Resolution: The ASiC specification will be fixed.

2) There is a wrong algo identifier for SHA256 in AsiCManifest
Resolution: To change "http://www.w3.org/2000/09/xmldsig#sha256" to "http://www.w3.org/2001/04/xmlenc#sha256" in ASiC specification examples

3) URI in ds:Reference in XAdES signatures. The Annex A.6 in the ASiC specification is not clear.
The rules for referencing files in the container from the *signatures*.xml files have been derived from ODF and aim to be compatible with it. After a careful check with ODF (that was not stable when clause A.6 was initially drafted) here are the findings:

a) When referencing another file in META-INF the "META-INF" folder has to be included

b) References are built like if the *signatures*.xml files were in the root folder. Examples: a reference to "document.txt" in the root folder is "document.txt" or "/document.txt" but not "../document.txt" like it should be considering the signature file inside META-INF; the reference to manifest.xml could then be "META-INF/manifest.xml" or "/META-INF/manifest.xml"

Resolution: The aim was to be compliant with ODF so a change to ASiC A.6 is required using a direct reference to ODF rules and add compatible rules for ASiCManifest.

4) Processing of the XAdES signatures as child of the root element is not fully specified and the expected behaviour by the participants was that the signatures are considered in their context and not extracted before verifying them; exclusive canonicalization should be used when the flexibility to extract end verify separately the signatures is required.

Resolution: To clarify this in the ASiC specification and add a note explaining the benefit of using the exclusive canonicalization.

5) Use of the comment field to identify the content of the container is presently specified as a hint to select the correct viewer for content. This has generated interpretation doubts especially for the extended containers.

Resolution: To give to the comment the same meaning and content of mimetype element (useful for implementations not supporting mimetype)

5.1 Evolution of ASiC Plugtests^{TM}

The participants manifested the interest in an update of the mother specification including long term features and to have a related new Plugtests. An update of the ASiC mother specification with long term features is in fact in the ETSI TC ESI standardization roadmap and the possibility to have then new events will be duly considered.

6 ASiC Plugtests^{TM} Interoperability matrixes

6.1 Summaries for Positive Test Cases

ASiC-S_CSSC_C

Signature	Generated	Number of	Total	Success		Failure		Not Applicable	
	Signatures	Verifiers	Verifications	Absolute	%	Absolute	%	Absolute	%
ASiC-S_CSSC_C-1	7	7	43	42	97,67	1	2,33		0,00
ASiC-S_CSSC_C-2	8	8	49	44	89,80	5	10,20		0,00
ASiC-S_CSSC_C-3	6	7	36	33	91,67	3	8,33		0,00
ASiC-S_CSSC_C-4	7	7	43	41	95,35	2	4,65		0,00
ASiC-S_CSSC_C-5	7	7	43	41	95,35	2	4,65		0,00
ASiC-S_CSSC_C-6	7	7	43	41	95,35	2	4,65		0,00

Total /Average	**42**	**43**	**257**	**242**	**94,20**	**15**	**5,80**	**0**	**0,00**

ASiC-S_CSSC_T

Signature	Generated	Number of	Total	Success		Failure		Not Applicable	
	Signatures	Verifiers	Verifications	Absolute	%	Absolute	%	Absolute	%
ASiC-S_CSSC_T-1	6	6	32	32	100,00		0,00		0,00
ASiC-S_CSSC_T-2	6	6	31	31	100,00		0,00		0,00
ASiC-S_CSSC_T-3	6	6	32	32	100,00		0,00		0,00
ASiC-S_CSSC_T-4	6	6	30	30	100,00		0,00		0,00
ASiC-S_CSSC_T-5	6	6	36	36	100,00		0,00		0,00
ASiC-S_CSSC_T-6	6	6	36	36	100,00		0,00		0,00

Total /Average	**36**	**36**	**197**	**197**	**100,00**	**0**	**0,00**	**0**	**0,00**

ASiC-S_CSSC_X

Signature	Generated	Number of	Total	Success		Failure		Not Applicable	
	Signatures	Verifiers	Verifications	Absolute	%	Absolute	%	Absolute	%
ASiC-S_CSSC_X-1	8	8	53	50	94,34	3	5,66		0,00
ASiC-S_CSSC_X-2	8	8	52	49	94,23	3	5,77		0,00
ASiC-S_CSSC_X-3	7	8	48	44	91,67	4	8,33		0,00
ASiC-S_CSSC_X-4	8	8	52	45	86,54	7	13,46		0,00
ASiC-S_CSSC_X-5	8	8	53	46	86,79	7	13,21		0,00
ASiC-S_CSSC_X-6	8	8	52	45	86,54	7	13,46		0,00
Total /Average	**47**	**48**	**310**	**279**	**90,02**	**31**	**9,98**	**0**	**0,00**

ASiC-S_STV_C

Signature	Generated	Number of	Total	Success		Failure		Not Applicable	
	Signatures	Verifiers	Verifications	Absolute	%	Absolute	%	Absolute	%
ASiC-S_STV_C-1	7	7	42	39	92,86	3	7,14		0,00
ASiC-S_STV_C-2	3	6	14	13	92,86	1	7,14		0,00
ASiC-S_STV_C-3	5	6	24	22	91,67	2	8,33		0,00
Total /Average	**15**	**19**	**80**	**74**	**92,46**	**6**	**7,54**	**0**	**0,00**

ASiC-S_STV_T

Signature	Generated	Number of	Total	Success		Failure		Not Applicable	
	Signatures	Verifiers	Verifications	Absolute	%	Absolute	%	Absolute	%
ASiC-S_STV_T-1	6	6	31	31	100,00		0,00		0,00
Total /Average	**6**	**6**	**31**	**31**	**100,00**	**0**	**0,00**	**0**	**0,00**

ASiC-S_STV_X

Signature	Generated	Number of	Total	Success		Failure		Not Applicable	
	Signatures	Verifiers	Verifications	Absolute	%	Absolute	%	Absolute	%
ASiC-S_STV_X-1	9	7	56	45	80,36	11	19,64		0,00
ASiC-S_STV_X-2	1	5	5	4	80,00		0,00	1	20,00
ASiC-S_STV_X-3	9	7	56	44	78,57	11	19,64	1	1,79
Total /Average	**19**	**19**	**117**	**93**	**79,64**	**22**	**13,10**	**2**	**7,26**

ASiC-E_CSSC_C

Signature	Generated	Number of	Total	Success		Failure		Not Applicable	
	Signatures	Verifiers	Verifications	Absolute	%	Absolute	%	Absolute	%
ASiC-E_CSSC_C-1	5	5	23	22	95,65	1	4,35		0,00
ASiC-E_CSSC_C-2	5	5	23	22	95,65	1	4,35		0,00
ASiC-E_CSSC_C-3	5	6	21	19	90,48	2	9,52		0,00
ASiC-E_CSSC_C-4	5	5	24	21	87,50	3	12,50		0,00
ASiC-E_CSSC_C-5	5	5	24	23	95,83	1	4,17		0,00
ASiC-E_CSSC_C-6	5	5	24	23	95,83	1	4,17		0,00

Total /Average	**30**	**31**	**139**	**130**	**93,49**	**9**	**6,51**	**0**	**0,00**

ASiC-E_CSSC_T

Signature	Generated	Number of	Total	Success		Failure		Not Applicable	
	Signatures	Verifiers	Verifications	Absolute	%	Absolute	%	Absolute	%
ASiC-E_CSSC_T-1	4	5	20	19	95,00	1	5,00		0,00
ASiC-E_CSSC_T-2	5	5	25	24	96,00	1	4,00		0,00
ASiC-E_CSSC_T-3	4	5	20	19	95,00	1	5,00		0,00
ASiC-E_CSSC_T-4	4	5	20	18	90,00	2	10,00		0,00
ASiC-E_CSSC_T-5	4	5	20	19	95,00	1	5,00		0,00
ASiC-E_CSSC_T-6	4	5	20	19	95,00	1	5,00		0,00

Total /Average	**25**	**30**	**125**	**118**	**94,33**	**7**	**5,67**	**0**	**0,00**

ASiC-E_CSSC_X

Signature	Generated	Number of	Total	Success		Failure		Not Applicable	
	Signatures	Verifiers	Verifications	Absolute	%	Absolute	%	Absolute	%
ASiC-E_CSSC_X-1	6	7	38	37	97,37	1	2,63		0,00
ASiC-E_CSSC_X-2	6	7	37	36	97,30	1	2,70		0,00
ASiC-E_CSSC_X-3	5	6	30	29	96,67	1	3,33		0,00
ASiC-E_CSSC_X-4	6	6	35	28	80,00	1	2,86	6	17,14
ASiC-E_CSSC_X-5	8	7	49	47	95,92	1	2,04	1	2,04
ASiC-E_CSSC_X-6	4	6	23	18	78,26	1	4,35	4	17,39
ASiC-E_CSSC_X-7	6	6	35	28	80,00	1	2,86	6	17,14
ASiC-E_CSSC_X-8	3	6	18	14	77,78	1	5,56	3	16,67
ASiC-E_CSSC_X-9	5	7	30	27	90,00	2	6,67	1	3,33

Total /Average	**49**	**58**	**295**	**264**	**88,14**	**10**	**3,67**	**21**	**8,19**

ASiC-E_STV_C

Signature	Generated	Number of	Total	Success		Failure		Not Applicable	
	Signatures	Verifiers	Verifications	Absolute	%	Absolute	%	Absolute	%
ASiC-E_STV_C-1	4	4	14	13	92,86	1	7,14		0,00
ASiC-E_STV_C-2	2	4	8	6	75,00	2	25,00		0,00
ASiC-E_STV_C-3	4	4	14	12	85,71	2	14,29		0,00
Total /Average	**10**	**12**	**36**	**31**	**84,52**	**5**	**15,48**	**0**	**0,00**

ASiC-E_STV_T

Signature	Generated	Number of	Total	Success		Failure		Not Applicable	
	Signatures	Verifiers	Verifications	Absolute	%	Absolute	%	Absolute	%
ASiC-E_STV_T-1	4	5	20	17	85,00	3	15,00		0,00
Total /Average	**4**	**5**	**20**	**17**	**85,00**	**3**	**15,00**	**0**	**0,00**

ASiC-E_STV_X

Signature	Generated	Number of	Total	Success		Failure		Not Applicable	
	Signatures	Verifiers	Verifications	Absolute	%	Absolute	%	Absolute	%
ASiC-E_STV_X-1	6	7	29	25	86,21	4	13,79		0,00
ASiC-E_STV_X-2	0	0	0	0	0	0	0		0
ASiC-E_STV_X-3	6	6	24	20	83,33	4	16,67		0,00
Total /Average	**12**	**13**	**53**	**45**	**#DIV/0!**	**8**	**#DIV/0!**	**0**	**#DIV/0!**

6.2 Summaries for Negative Test Cases

ASiC-S_STV_CN

Signature	Generated	Number of	Total	Success		Failure		Not Applicable	
	Signatures	Verifiers	Verifications	Absolute	%	Absolute	%	Absolute	%
ASiC-S_STV_CN-1	1	4	4		0,00	4	100,00		0,00
ASiC-S_STV_CN-2	1	3	3		0,00	3	100,00		0,00
ASiC-S_STV_CN-3	1	3	3		0,00	3	100,00		0,00

Total /Average	**3**	**10**	**10**	**0**	**0,00**	**10**	**100,00**	**0**	**0,00**

ASiC-S_STV_TN

Signature	Generated	Number of	Total	Success		Failure		Not Applicable	
	Signatures	Verifiers	Verifications	Absolute	%	Absolute	%	Absolute	%
ASiC-S_STV_TN-1	1	5	5		0,00	5	100,00		0,00

Total /Average	**1**	**5**	**5**	**0**	**0,00**	**5**	**100,00**	**0**	**0,00**

ASiC-S_STV_XN

Signature	Generated	Number of	Total	Success		Failure		Not Applicable	
	Signatures	Verifiers	Verifications	Absolute	%	Absolute	%	Absolute	%
ASiC-S_STV_XN-1	1	5	5		0,00	5	100,00		0,00
ASiC-S_STV_XN-2	1	5	5		0,00	5	100,00		0,00
ASiC-S_STV_XN-3	1	5	5		0,00	5	100,00		0,00

Total /Average	**3**	**15**	**15**	**0**	**0,00**	**15**	**100,00**	**0**	**0,00**

ASiC-E_STV_CN

Signature	Generated	Number of	Total	Success		Failure		Not Applicable	
	Signatures	Verifiers	Verifications	Absolute	%	Absolute	%	Absolute	%
ASiC-E_STV_CN-1	1	3	3		0,00	3	100,00		0,00
ASiC-E_STV_CN-2	1	3	3		0,00	3	100,00		0,00
ASiC-E_STV_CN-3	1	2	2		0,00	2	100,00		0,00
ASiC-E_STV_CN-4	1	2	2		0,00	2	100,00		0,00

Total /Average	**4**	**10**	**10**	**0**	**0,00**	**10**	**100,00**	**0**	**0,00**

ASiC-E_STV_TN

Signature	Generated	Number of	Total	Success		Failure		Not Applicable	
	Signatures	Verifiers	Verifications	Absolute	%	Absolute	%	Absolute	%
ASiC-E_STV_TN-1	1	4	4	4	100,00		0,00		0,00

Total /Average	**1**	**4**	**4**	**4**	**100,00**	**0**	**0,00**	**0**	**0,00**

ASiC-E_STV_XN

Signature	Generated	Number of	Total	Success		Failure		Not Applicable	
	Signatures	Verifiers	Verifications	Absolute	%	Absolute	%	Absolute	%
ASiC-E_STV_XN-1	1	5	5		0,00	5	100,00		0,00
ASiC-E_STV_XN-2	1	3	3		0,00	3	100,00		0,00
ASiC-E_STV_XN-3	1	3	3		0,00	3	100,00		0,00
Total /Average	**3**	**11**	**11**	**0**	**0,00**	**11**	**100,00**	**0**	**0,00**

6.3 Positive test cases for generation and verification for ASiC

6.3.1 Test cases for ASiC-S_CSSC_C TestSet.

The test cases in this section deal with the ASiC-S_CSSC_C TestSet.

The following table shows the properties of the ASiC-S_CSSC_C TestSet and wich test cases test them.

ASiC-S_CSSC_C.SCOK									
Property → TestCase ↓	ASC	ADO	AAX	AAC	AAT	AFE	AMT	AZIPC	SPI
ASiC-S_CSSC_C-1.xml	*	*		*					
ASiC-S_CSSC_C-2.xml	*	*		*		*	*		
ASiC-S_CSSC_C-3.xml	*	*		*				*	
ASiC-S_CSSC_C-4.xml	*	*		*			*		
ASiC-S_CSSC_C-5.xml	*	*		*					
ASiC-S_CSSC_C-6.xml	*	*		*					

All these tests should verify without any problems.

ASiC-S_CSSC_C-1.xml contains the following Properties:

- AsicDataObject
- AsicAssociatedCades

This test case tests if the container has an ".asics" extension and has a ZIP format extacting the content (TS 119 164-2 TC/ASiC-S/CS/1)

ASiC-S_CSSC_C-2.xml contains the following Properties:

- AsicMimeType
- AsicDataObject

- AsicAssociatedCades

This test case tests if the container if the container format is identifiable using mimetype (TS 119 164-2 TC/ASiC-S/CS/2)

ASiC-S_CSSC_C-3.xml contains the following Properties:

- AsicDataObject
- AsicZIPComment
- AsicAssociatedCades

This test case tests if the ZIP comment, when used to identify the format, begins with the content "mimetype=" it is followed by a mime type value coherent with the signed object extension (TS 119 164-2 TC/ASiC-S/CS/3)

ASiC-S_CSSC_C-4.xml contains the following Properties:

- AsicDataObject
- AsicMimeType
- AsicAssociatedCades

This test case tests mimetype when set equal to the signed content mimetype (TS 119 164-2 TC/ASiC-S/CS/4)

ASiC-S_CSSC_C-5.xml contains the following Properties:

- AsicDataObject
- AsicAssociatedCades

This test case tests if A META-INF folder is present in the root folder containing signature.p7s (TS 119 164-2 TC/ASiC-S/CS/6 and TC/ASiC-S/SC/C1)

ASiC-S_CSSC_C-6.xml contains the following Properties:

- AsicDataObject
- AsicAssociatedCades

This test case tests if a single data object, in addition to the optional mimetype, is present in the root folder (TS 119 164-2 TC/ASiC-S/CS/7)

6.3.2 Test cases for ASiC-S_CSSC_T TestSet.

The test cases in this section deal with the `ASiC-S_CSSC_T` TestSet.

The following table shows the properties of the `ASiC-S_CSSC_T` TestSet and wich test cases test them.

ASiC-S_CSSC_T.SCOK									
Property → TestCase ↓	ASC	ADO	AAX	AAC	AAT	AFE	AMT	AZIPC	SPI
ASiC-S_CSSC_T-1.xml	*	*			*				
ASiC-S_CSSC_T-2.xml	*	*			*	*	*		

ASiC-S_CSSC_T-3.xml	*	*			*			*	
ASiC-S_CSSC_T-4.xml	*	*			*		*		
ASiC-S_CSSC_T-5.xml	*	*			*				
ASiC-S_CSSC_T-6.xml	*	*			*				

All these tests should verify without any problems.

ASiC-S_CSSC_T-1.xml contains the following Properties:

- AsicDataObject
- AsicAssociatedTst

This test case tests if the container has a ZIP format and the content can be successfully extracted (TS 119 164-2 TC/ASiC-S/CS/1)

ASiC-S_CSSC_T-2.xml contains the following Properties:

- AsicDataObject
- AsicMimeType
- AsicAssociatedTst

This test case tests if the container if the container format is identifiable using mimetype (TS 119 164-2 TC/ASiC-S/CS/2)

ASiC-S_CSSC_T-3.xml contains the following Properties:

- AsicDataObject
- AsicZIPComment
- AsicAssociatedTst

This test case tests if the ZIP comment, when used to identify the format, begins with the content "mimetype=" it is followed by a mime type value coherent with the signed object extension (TS 119 164-2 TC/ASiC-S/CS/3)

ASiC-S_CSSC_T-4.xml contains the following Properties:

- AsicDataObject
- AsicMimeType
- AsicAssociatedTst

This test case tests mimetype when set equal to the signed content mimetype (TS 119 164-2 TC/ASiC-S/CS/4)

ASiC-S_CSSC_T-5.xml contains the following Properties:

- AsicDataObject
- AsicAssociatedTst

This test case tests if A META-INF folder is present in the root folder containing timestamp.tst (TS 119 164-2 TC/ASiC-S/CS/6 and TC/ASiC-S/SC/T1)

ASiC-S_CSSC_T-6.xml contains the following Properties:

- AsicDataObject
- AsicAssociatedTst

This test case tests if a single data object, in addition to the optional mimetype, is present in the root folder (TS 119 164-2 TC/ASiC-S/CS/7)

6.3.3 Test cases for ASiC-S_CSSC_X TestSet.

The test cases in this section deal with the ASiC-S_CSSC_T TestSet.

The following table shows the properties of the ASiC-S_CSSC_T TestSet and wich test cases test them.

ASiC-S_CSSC_X.SCOK									
Property → TestCase ↓	ASC	ADO	AAX	AAC	AAT	AFE	AMT	AZIPC	SPI
ASiC-S_CSSC_X-1.xml	*	*	*						
ASiC-S_CSSC_X-2.xml	*	*	*			*	*		
ASiC-S_CSSC_X-3.xml	*	*	*					*	
ASiC-S_CSSC_X-4.xml	*	*	*				*		
ASiC-S_CSSC_X-5.xml	*	*	*						
ASiC-S_CSSC_X-6.xml	*	*	*						

All these tests should verify without any problems.

ASiC-S_CSSC_X-1.xml contains the following Properties:

- AsicDataObject
- AsicAssociatedXades

This test case tests if the container has a ZIP format and the content can be successfully extracted (TS 119 164-2 TC/ASiC-S/CS/1)

ASiC-S_CSSC_X-2.xml contains the following Properties:

- AsicDataObject
- AsicMimeType
- AsicAssociatedXades

This test case tests if the container if the container format is identifiable using mimetype (TS 119 164-2 TC/ASiC-S/CS/2)

ASiC-S_CSSC_X-3.xml contains the following Properties:

- AsicDataObject

- AsicZIPComment
- AsicAssociatedXades

This test case tests if the ZIP comment, when used to identify the format, begins with the content "mimetype=" it is followed by a mime type value coherent with the signed object extension (TS 119 164-2 TC/ASiC-S/CS/3)

ASiC-S_CSSC_X-4.xml contains the following Properties:

- AsicDataObject
- AsicMimeType
- AsicAssociatedXades

This test case tests mimetype when set equal to the signed content mimetype (TS 119 164-2 TC/ASiC-S/CS/4)

ASiC-S_CSSC_X-5.xml contains the following Properties:

- AsicDataObject
- AsicAssociatedXades

This test case tests if A META-INF folder is present in the root folder containing signatures.xml (TS 119 164-2 TC/ASiC-S/CS/6 and TC/ASiC-S/SC/X1)

ASiC-S_CSSC_X-6.xml contains the following Properties:

- AsicDataObject
- AsicAssociatedXades

This test case tests if a single data object, in addition to the optional mimetype, is present in the root folder (TS 119 164-2 TC/ASiC-S/CS/7)

6.3.4 Test cases for ASiC-S_STV_C TestSet.

The test cases in this section deal with the `ASiC-S_STV_C` TestSet.

The following table shows the properties of the `ASiC-S_STV_C` TestSet and wich test cases test them.

ASiC-S_STV_C.SCOK									
Property → TestCase ↓	ASC	ADO	AAX	AAC	AAT	AFE	AMT	AZIPC	SPI
ASiC-S_STV_C-1.xml	*	*		*					
ASiC-S_STV_C-2.xml	*	*		*					*
ASiC-S_STV_C-3.xml	*	*		*					

All these tests should verify without any problems.

ASiC-S_STV_C-1.xml contains the following Properties:

- AsicDataObject
- SignedDocument

- MessageDigest
- ESSSigningCertificateV1orV2
- ContentType

This test case tests if META-INF/signature.p7s contains a valid CAdES-BES signature associated to the file specified in SignedDocument (TS 119 164-2 TC/ASiC-S/STV/C1)

ASiC-S_STV_C-2.xml contains the following Properties:

- AsicDataObject
- SignedDocument
- MessageDigest
- SigningTime
- ESSSigningCertificateV1orV2
- SignaturePolicyIdentifier
- ContentType

This test case tests if META-INF/signature.p7s contains a valid CAdES-EPES signature associated to the file specified in SignedDocument (TS 119 164-2 TC/ASiC-S/STV/C2)

ASiC-S_STV_C-3.xml contains the following Properties:

- AsicDataObject
- SignedDocument
- MessageDigest
- ESSSigningCertificateV1orV2
- ContentType
- MessageDigest
- ESSSigningCertificateV1orV2
- ContentType

This test case tests if META-INF/signature.p7s contains 2 valid CAdES-BES signatures associated to the file specified in SignedDocument (TS 119 164-2 TC/ASiC-S/STV/C3)

6.3.5 Test cases for ASiC-S_STV_T TestSet.

The test cases in this section deal with the `ASiC-S_STV_T` TestSet.

The following table shows the properties of the `ASiC-S_STV_T` TestSet and wich test cases test them.

ASiC-S_STV_T.SCOK									
Property → TestCase ↓	ASC	ADO	AAX	AAC	AAT	AFE	AMT	AZIPC	SPI

ASiC-S_STV_T-1.xml	*	*			*				

All these tests should verify without any problems.

ASiC-S_STV_T-1.xml contains the following Properties:

- AsicDataObject
- SignedDocument

This test case tests if META-INF/timestamp.tst contains a valid Time-stamp Token associated to the file specified in SignedData (TS 119 164-2 TC/ASiC-S/STV/T1)

6.3.6 Test cases for ASiC-S_STV_X TestSet.

The test cases in this section deal with the ASiC-S_STV_X TestSet.

The following table shows the properties of the ASiC-S_STV_X TestSet and wich test cases test them.

ASiC-S_STV_X.SCOK									
Property → TestCase ↓	ASC	ADO	AAX	AAC	AAT	AFE	AMT	AZIPC	SPI
ASiC-S_STV_X-1.xml	*	*	*						
ASiC-S_STV_X-2.xml	*	*	*						*
ASiC-S_STV_X-3.xml	*	*	*						

All these tests should verify without any problems.

ASiC-S_STV_X-1.xml contains the following Properties:

- AsicDataObject
- xades:SigningTime
- Certificate

This test case tests if META-INF/signatures.xml contains a valid XAdES-BES signature associated to the file specified in SignedData (TS 119 164-2 TC/ASiC-S/STV/X1)

ASiC-S_STV_X-2.xml contains the following Properties:

- AsicDataObject
- xades:SigningTime
- Certificate
- dsig:Transform
- ds:DigestMethod

This test case tests if META-INF/signatures.xml contains a valid XAdES-EPES signature associated to the file specified in SignedData (TS 119 164-2 TC/ASiC-S/STV/X2)

ASiC-S_STV_X-3.xml contains the following Properties:

- AsicDataObject
- xades:SigningTime
- Certificate
- xades:SigningTime
- Certificate

This test case tests if META-INF/signatures.xml contains 2 valid XAdES-BES signatures associated to the file specified in SignedDocument (TS 119 164-2 TC/ASiC-S/STV/X3)

6.3.7 Test cases for ASiC-E_CSSC_C TestSet.

The test cases in this section deal with the `ASiC-E_CSSC_C` TestSet.

The following table shows the properties of the `ASiC-E_CSSC_C` TestSet and wich test cases test them.

ASiC-E_CSSC_C.SCOK															
Property → TestCase ↓	AEC	ADO	AM	SR	DOR	AAX	AAC	AAT	AFE	AMT	AZIPC	AMIM	AMIC	AMIMD	SPI
ASiC-E_CSSC_C-1.xml	*	*	*				*								
ASiC-E_CSSC_C-2.xml	*	*	*				*		*	*					
ASiC-E_CSSC_C-3.xml	*	*	*				*				*				
ASiC-E_CSSC_C-4.xml	*	*	*				*			*					
ASiC-E_CSSC_C-5.xml	*	*	*				*								
ASiC-E_CSSC_C-6.xml	*	*	*				*								

All these tests should verify without any problems.

ASiC-E_CSSC_C-1.xml contains the following Properties:

- AsicDataObject
- AsicManifest
- AsicAssociatedCades

This test case tests if the container has a ZIP format and the content can be successfully extracted (TS 119 164-2 TC/ASiC-E/CS/1)

ASiC-E_CSSC_C-2.xml contains the following Properties:

- AsicDataObject

- AsicMimeType
- AsicManifest
- AsicAssociatedCades

This test case tests if the container if the container format is identifiable using mimetype (TS 119 164-2 TC/ASiC-E/CS/2)

ASiC-E_CSSC_C-3.xml contains the following Properties:

- AsicDataObject
- AsicZIPComment
- AsicManifest
- AsicAssociatedCades

This test case tests if the ZIP comment, when used to identify the format, begins with the content "mimetype=" it is followed by a mime type value coherent with the signed object extension (TS 119 164-2 TC/ASiC-E/CS/3)

ASiC-E_CSSC_C-4.xml contains the following Properties:

- AsicDataObject
- AsicMimeType
- AsicManifest
- AsicAssociatedCades

This test case tests mimetype when set to the signed content mime type (TS 119 164-2 TC/ASiC-E/CS/4)

ASiC-E_CSSC_C-5.xml contains the following Properties:

- AsicDataObject
- AsicDataObject
- AsicManifest
- AsicAssociatedCades

This test case tests if A META-INF folder is present in the root folder containing ASiCManifest2.xml and signature2.p7s and that ASiCManifest2.xml conforms to TS 102 918 clause A.4 (TS 119 164-2 TC/ASiC-E/CS/5, TC/ASiC-E/SC/CT1 and TC/ASiC-E/SC/CT2)

ASiC-E_CSSC_C-6.xml contains the following Properties:

- AsicDataObject
- AsicDataObject
- AsicManifest
- AsicAssociatedCades

This test case tests if the optional MimeType attributes of SigReference elements inside ASiCManifest are coherent to the referenced elements (TS 119 164-2 TC/ASiC-E/SC/CT3)

6.3.8 Test cases for ASiC-E_CSSC_T TestSet.

The test cases in this section deal with the `ASiC-E_CSSC_T` TestSet.

The following table shows the properties of the `ASiC-E_CSSC_T` TestSet and wich test cases test them.

ASiC-E_CSSC_T.SCOK															
Property → TestCase ↓	AEC	ADO	AM	SR	DOR	AAX	AAC	AAT	AFE	AMT	AZIPC	AMIM	AMIC	AMIMD	SPI
ASiC-E_CSSC_T-1.xml	*	*	*					*							
ASiC-E_CSSC_T-2.xml	*	*	*					*	*	*					
ASiC-E_CSSC_T-3.xml	*	*	*					*			*				
ASiC-E_CSSC_T-4.xml	*	*	*					*		*					
ASiC-E_CSSC_T-5.xml	*	*	*					*							
ASiC-E_CSSC_T-6.xml	*	*	*					*							

All these tests should verify without any problems.

ASiC-E_CSSC_T-1.xml contains the following Properties:

- AsicDataObject
- AsicManifest
- AsicAssociatedTst

This test case tests if the container has a ZIP format and the content can be successfully extracted (TS 119 164-2 TC/ASiC-E/CS/1)

ASiC-E_CSSC_T-2.xml contains the following Properties:

- AsicDataObject
- AsicMimeType
- AsicManifest
- AsicAssociatedTst

This test case tests if the container format is identifiable using mimetype (TS 119 164-2 TC/ASiC-E/CS/2)

ASiC-E_CSSC_T-3.xml contains the following Properties:

- AsicDataObject
- AsicZIPComment
- AsicManifest
- AsicAssociatedTst

This test case tests if the ZIP comment, when used to identify the format, begins with the content "mimetype=" it is followed by a mime type value coherent with the signed object extension (TS 119 164-2 TC/ASiC-E/CS/3)

ASiC-E_CSSC_T-4.xml contains the following Properties:

- AsicDataObject
- AsicMimeType
- AsicManifest
- AsicAssociatedTst

This test case tests mimetype when set to the signed content mime type (TS 119 164-2 TC/ASiC-E/CS/4)

ASiC-E_CSSC_T-5.xml contains the following Properties:

- AsicDataObject
- AsicDataObject
- AsicManifest
- AsicAssociatedTst

This test case tests if A META-INF folder is present in the root folder containing ASiCManifest4.xml and timestamp4.tst and that ASiCManifest4.xml conforms to TS 102 918 clause A.4 (TS 119 164-2 TC/ASiC-E/CS/5, TC/ASiC-E/SC/CT1 and TC/ASiC-E/SC/CT2)

ASiC-E_CSSC_T-6.xml contains the following Properties:

- AsicDataObject
- AsicDataObject
- AsicManifest
- AsicAssociatedTst

This test case tests if the optional MimeType attributes of SigReference elements inside ASiCManifest are coherent to the referenced elements (TS 119 164-2 TC/ASiC-E/SC/CT3)

6.3.9 Test cases for ASiC-E_CSSC_X TestSet.

The test cases in this section deal with the `ASiC-E_CSSC_X` TestSet.

The following table shows the properties of the `ASiC-E_CSSC_X` TestSet and wich test cases test them.

ASiC-E_CSSC_X.SCOK															
Property → TestCase ↓	AEC	ADO	AM	SR	DOR	AAX	AAC	AAT	AFE	AMT	AZIPC	AMIM	AMIC	AMIMD	SPI
ASiC-E_CSSC_X-1.xml	*	*				*						*			
ASiC-E_CSSC_X-2.xml	*	*				*			*	*		*			
ASiC-E_CSSC_X-3.xml	*					*					*	*			
ASiC-E_CSSC_X-4.xml	*	*				*				*		*			
ASiC-E_CSSC_X-5.xml	*	*				*									
ASiC-E_CSSC_X-6.xml	*	*				*				*			*		
ASiC-E_CSSC_X-7.xml	*					*				*		*			
ASiC-E_CSSC_X-8.xml	*					*				*			*	*	
ASiC-E_CSSC_X-9.xml	*					*						*			

All these tests should verify without any problems.

ASiC-E_CSSC_X-1.xml contains the following Properties:

- AsicDataObject
- AsicMetaInfManifest
- AsicAssociatedXades

This test case tests if the container has a ZIP format and the content can be successfully extracted (TS 119 164-2 TC/ASiC-E/CS/1)

ASiC-E_CSSC_X-2.xml contains the following Properties:

- AsicDataObject
- AsicMimeType
- AsicMetaInfManifest
- AsicAssociatedXades

This test case tests if the container if the container format is identifiable using mimetype (TS 119 164-2 TC/ASiC-E/CS/2)

ASiC-E_CSSC_X-3.xml contains the following Properties:

- AsicSignedData

- AsicZIPComment
- AsicMetaInfManifest
- AsicAssociatedXades

This test case tests if the ZIP comment, when used to identify the format, begins with the content "mimetype=" it is followed by a mime type value coherent with the signed object extension (TS 119 164-2 TC/ASiC-E/CS/3)

ASiC-E_CSSC_X-4.xml contains the following Properties:

- AsicDataObject
- AsicMetaInfManifest
- AsicMimeType
- AsicAssociatedXades

This test case tests mimetype when set to the signed content mime type (TS 119 164-2 TC/ASiC-E/CS/4)

ASiC-E_CSSC_X-5.xml contains the following Properties:

- AsicDataObject
- AsicDataObject
- AsicAssociatedXades

This test case tests if A META-INF folder is present in the root folder containing signatures1.xml that conforms to TS 102 918 one of the items 3a, 3b or 3c of 6.2.2 (TS 119 164-2 TC/ASiC-E/CS/5, TC/ASiC-E/SC/X1)

ASiC-E_CSSC_X-6.xml contains the following Properties:

- AsicDataObject
- AsicDataObject
- AsicMetaInfContainer
- AsicMimeType
- AsicAssociatedXades

This test case tests if container.xml is present in META-INF folder andd that conforms to TS 102 918 clause 6.2.2 point 4b (TS 119 164-2 TC/ASiC-E/CS/5, TC/ASiC-E/SC/X3, TC/ASiC-E/SC/X5)

ASiC-E_CSSC_X-7.xml contains the following Properties:

- AsicSignedData
- AsicMetaInfManifest
- AsicMimeType
- AsicAssociatedXades

This test case tests if manifest.xml is present in META-INF folder and that conforms to TS 102 918 clause 6.2.2 point 4b (TS 119 164-2 TC/ASiC-E/CS/5, TC/ASiC-E/SC/X3, TC/ASiC-E/SC/X4)

ASiC-E_CSSC_X-8.xml contains the following Properties:

- AsicSignedData
- AsicSignedData
- AsicMetaInfContainer
- AsicMetaInfMetaData
- AsicMimeType
- AsicAssociatedXades

This test case tests if container.xml is present in META-INF folder and that conforms to TS 102 918 clause 6.2.2 point 4b (TS 119 164-2 TC/ASiC-E/CS/5, TC/ASiC-E/SC/X4, TC/ASiC-E/SC/X5)

ASiC-E_CSSC_X-9.xml contains the following Properties:

- AsicSignedData
- AsicSignedData
- AsicMetaInfManifest
- AsicAssociatedXades

This test case tests if All mime types present in manifest.xml metadata are coherent with referenced objects (TS 119 164-2 TC/ASiC-E/SC/X6)

6.3.10 Test cases for ASiC-E_STV_C TestSet.

The test cases in this section deal with the `ASiC-E_STV_C` TestSet.

The following table shows the properties of the `ASiC-E_STV_C` TestSet and wich test cases test them.

ASiC-E_STV_C.SCOK															
Property → TestCase ↓	AEC	ADO	AM	SR	DOR	AAX	AAC	AAT	AFE	AMT	AZIPC	AMIM	AMIC	AMIMD	SPI
ASiC-E_STV_C-1.xml	*	*	*	*	*		*								
ASiC-E_STV_C-2.xml	*	*	*	*	*		*								
ASiC-E_STV_C-3.xml	*	*	*	*	*		*								

All these tests should verify without any problems.

ASiC-E_STV_C-1.xml contains the following Properties:

- AsicDataObject
- AsicDataObject

- SigReference
- DataObjectReference
- DataObjectReference
- SignedDocument
- MessageDigest
- ESSSigningCertificateV1orV2
- ContentType

This test case tests if the metadata whose name matches signature1.p7s contains a valid CAdES-BES conformant signature that is verified correctly on the related ASiCManifest1.xml metadata. (TS 119 164-2 TC/ASiC-E/STV/C1)

ASiC-E_STV_C-2.xml contains the following Properties:

- AsicDataObject
- AsicDataObject
- SigReference
- DataObjectReference
- DataObjectReference
- SignedDocument
- MessageDigest
- ESSSigningCertificateV1orV2
- ContentType

This test case tests if signature.p7s contains a valid CAdES-EPES conformant signature that is verified correctly on the related ASiCManifest.xml metadata and that the references contained in ASiCManifest.xml refer correctly to one or more data objects and their hashes (TS 119 164-2 TC/ASiC-E/STV/C2)

ASiC-E_STV_C-3.xml contains the following Properties:

- AsicDataObject
- AsicDataObject
- SigReference
- DataObjectReference
- DataObjectReference
- SignedDocument
- MessageDigest
- ESSSigningCertificateV1orV2
- ContentType

- MessageDigest
- ESSSigningCertificateV1orV2
- ContentType

This test case tests if signature.p7s contains 2 valid CAdES-BES conformant signatures that are verified correctly on the ASiCManifest metadata. The references contained in ASiCManifest refer correctly to one or more data objects and their hashes. (TS 119 164-2 TC/ASiC-E/STV/C3)

6.3.11 Test cases for ASiC-E_STV_T TestSet.

The test cases in this section deal with the ASiC-E_STV_T TestSet.

The following table shows the properties of the ASiC-E_STV_T TestSet and wich test cases test them.

ASiC-E_STV_T.SCOK															
Property → TestCase ↓	AEC	ADO	AM	SR	DOR	AAX	AAC	AAT	AFE	AMT	AZIPC	AMIM	AMIC	AMIMD	SPI
ASiC-E_STV_T-1.xml	*	*	*	*	*			*							

All these tests should verify without any problems.

ASiC-E_STV_T-1.xml contains the following Properties:

- AsicDataObject
- AsicDataObject
- SigReference
- DataObjectReference
- DataObjectReference
- SignedDocument

This test case tests if the metadata timestamp1.tst contains a valid RFC3161 time-stamp token that is verified correctly on the ASiCManifest metadata. The references contained in ASiCManifest refer correctly the data objects and their hashes. (TS 119 164-2 TC/ASiC-E/STV/T1)

6.3.12 Test cases for ASiC-E_STV_X TestSet.

The test cases in this section deal with the ASiC-E_STV_X TestSet.

The following table shows the properties of the ASiC-E_STV_X TestSet and wich test cases test them.

ASiC-E_STV_X.SCOK															
Property → TestCase ↓	AEC	ADO	AM	SR	DOR	AAX	AAC	AAT	AFE	AMT	AZIPC	AMIM	AMIC	AMIMD	SPI
ASiC-E_STV_X-1.xml	*	*				*						*			
ASiC-E_STV_X-2.xml	*	*				*						*			*
ASiC-E_STV_X-	*	*				*						*			

3.xml															

All these tests should verify without any problems.

ASiC-E_STV_X-1.xml contains the following Properties:

- AsicDataObject
- AsicMetaInfManifest
- ds:Reference
- ds:Reference
- xades:SigningTime
- Certificate

This test case tests that the metadata signatures.xml contains a valid XAdES-BES signature that is verified correctly on the referenced data object (TS 119 164-2 TC/ASiC-E/STV/X1)

ASiC-E_STV_X-2.xml contains the following Properties:

- AsicDataObject
- AsicMetaInfManifest
- ds:Reference
- ds:Reference
- xades:SigningTime
- Certificate
- dsig:Transform
- ds:DigestMethod

This test case tests that the metadata whose name matches signatures.xml contains an XAdES-EPES conformant signature that is verified correctly on the referenced data object (TS 119 164-2 TC/ASiC-E/STV/X2)

ASiC-E_STV_X-3.xml contains the following Properties:

- AsicDataObject
- AsicDataObject
- AsicMetaInfManifest
- ds:Reference
- ds:Reference
- xades:SigningTime
- Certificate
- ds:Reference
- ds:Reference

- xades:SigningTime
- Certificate

This test case tests that the metadata whose name matches *signatures*.xml contains 2 XAdES-BES or XAdES-EPES conformant signatures that are verified correctly on the referenced data object. (TS 119 164-2 TC/ASiC-E/STV/X3)

6.4 Negative test cases for verification for ASiC

In the 'negative test' participants will do following:

1. A partiticipating implementation must verify the ASiC containers. Verification of the ASiC containers shall be negative. That's why we say 'negative test' for this test.
2. A participant will download ASiC containers generated by the organizers.
3. Verify ASiC containers.
4. Upload verification results as XML files.
5. See test result matrix.

Negative test cases files are in the 'NegativeTests' folder grouped by ASiC TestSet.

The following section contains negative test cases grouped by ASiC TestSet.

6.4.1 Negative test cases for ASiC-S_STV_C (TestSet ASiC-S_STV_CN).

The following tables (one for each scenario) show the properties of the `ASiC-S_STV_CN` TestSet and wich test cases test them.

ASiC-S_STV_CN.SCOK									
Property → TestCase ↓	ASC	ADO	AAX	AAC	AAT	AFE	AMT	AZIPC	SPI
ASiC-S_STV_CN-1.xml	*	*		*					

ASiC-S_STV_CN-1.xml contains the following Properties:

- AsicDataObject
- SignedDocument
- Certificate
- MessageDigest
- ESSSigningCertificateV1orV2
- ContentType

This test case tests if META-INF/signature.p7s contains an invalid CAdES-BES signature (in the SC1 PKI scenario) associated to the SignedDocument file specified inside the SimpleContainer element (TS 119 164-2 TC/ASiC-S/STV/NC1)

ASiC-S_STV_CN.SC11									
Property → TestCase ↓	ASC	ADO	AAX	AAC	AAT	AFE	AMT	AZIPC	SPI
ASiC-S_STV_CN-2.xml	*	*		*					

ASiC-S_STV_CN-2.xml contains the following Properties:

- AsicDataObject
- SignedDocument
- MessageDigest
- ESSSigningCertificateV1orV2
- ContentType
- MessageDigest
- ContentType

This test case tests if the second CAdES-BES signature in META-INF/signature.p7s fails verification because the signing certificate is revoked (TS 119 164-2 TC/ASiC-S/STV/NC2)

ASiC-S_STV_CN.SC12									
Property → TestCase ↓	ASC	ADO	AAX	AAC	AAT	AFE	AMT	AZIPC	SPI
ASiC-S_STV_CN-3.xml	*	*		*					

ASiC-S_STV_CN-3.xml contains the following Properties:

- AsicDataObject
- SignedDocument
- Certificate
- MessageDigest
- ESSSigningCertificateV1orV2
- ContentType
- MessageDigest
- ContentType
- SignatureTimeStamp

This test case tests if the second CAdES-BES signature in META-INF/signature.p7s fails verification because the certificate of one of the CAs in the certification path is revoked (TS 119 164-2 TC/ASiC-S/STV/NC3)

6.4.2 Negative test cases for ASiC-S_STV_T (TestSet ASiC-S_STV_TN).

The following tables (one for each scenario) show the properties of the ASiC-S_STV_TN TestSet and wich test cases test them.

ASiC-S_STV_TN.SCOK									
Property → TestCase ↓	ASC	ADO	AAX	AAC	AAT	AFE	AMT	AZIPC	SPI
ASiC-S_STV_TN-1.xml	*	*			*				

ASiC-S_STV_TN-1.xml contains the following Properties:

- AsicDataObject
- SignedDocument
- TimeStampToken
- SignedData

This negative test case tests if META-INF/timestamp.tst contains a valid time-stamp token that does not apply to the file specified in (TS 119 164-2 TC/ASiC-S/STV/NT1)

6.4.3 Negative test cases for ASiC-S_STV_X (TestSet ASiC-S_STV_XN).

The following tables (one for each scenario) show the properties of the ASiC-S_STV_XN TestSet and wich test cases test them.

ASiC-S_STV_XN.SCOK									
Property → TestCase ↓	ASC	ADO	AAX	AAC	AAT	AFE	AMT	AZIPC	SPI
ASiC-S_STV_XN-1.xml	*	*	*						

ASiC-S_STV_XN-1.xml contains the following Properties:

- AsicDataObject
- SignedDocument
- Certificate
- xades:SigningTime

This negative test case tests if META-INF/signatures.xml contains a valid XAdES-BES signature that does not apply to the file specified in SignedData (TS 119 164-2 TC/ASiC-S/STV/XN1)

ASiC-S_STV_XN.SC11									
Property → TestCase ↓	ASC	ADO	AAX	AAC	AAT	AFE	AMT	AZIPC	SPI
ASiC-S_STV_XN-2.xml	*	*	*						

ASiC-S_STV_XN-2.xml contains the following Properties:

- AsicDataObject
- xades:SigningTime
- Certificate
- xades:SigningTime

This test case tests if the second XAdES-BES signature in META-INF/signatures.xml fails verification because the signing certificate is revoked (TS 119 164-2 TC/ASiC-S/STV/XN2)

ASiC-S_STV_XN.SC12									
Property → TestCase ↓	ASC	ADO	AAX	AAC	AAT	AFE	AMT	AZIPC	SPI
ASiC-S_STV_XN-3.xml	*	*	*						

ASiC-S_STV_XN-3.xml contains the following Properties:

- AsicDataObject
- xades:SigningTime
- Certificate
- xades:SigningTime

This test case tests if the second XAdES-BES signature in META-INF/signatures.xml fails verification because the certificate of one of the CAs in the certification path is revoked (TS 119 164-2 TC/ASiC-S/STV/XN2)

6.4.4 Negative test cases for ASiC-E_STV_C (TestSet ASiC-E_STV_CN).

The following tables (one for each scenario) show the properties of the `ASiC-E_STV_CN` TestSet and wich test cases test them.

ASiC-E_STV_CN.SCOK															
Property → TestCase ↓	AEC	ADO	AM	SR	DOR	AAX	AAC	AAT	AFE	AMT	AZIPC	AMIM	AMIC	AMIMD	SPI
ASiC-E_STV_CN-1.xml	*	*	*				*								
ASiC-E_STV_CN-	*	*	*				*								

2.xml															

ASiC-E_STV_CN-1.xml contains the following Properties:

- AsicDataObject
- AsicManifest
- AsicAssociatedCades

This test case tests if the metadata whose name matches signature1.p7s contains an CAdES-BES or CAdES-EPES conformant signature that fails verification on the ASiCManifest metadata. (TS 119 164-2 TC/ASiCE/STV/NC1)

ASiC-E_STV_CN-2.xml contains the following Properties:

- AsicDataObject
- AsicDataObject
- AsicManifest
- AsicAssociatedCades

This test case tests if The metadata whose name matches signature2.p7s contains an CAdES-BES or CAdES-EPES conformant signature that fails verification on the ASiCManifest metadata. (TS 119 164-2 TC/ASiCE/STV/NC2)

ASiC-E_STV_CN.SC11															
Property → TestCase ↓	AEC	ADO	AM	SR	DOR	AAX	AAC	AAT	AFE	AMT	AZIPC	AMIM	AMIC	AMIMD	SPI
ASiC-E_STV_CN-3.xml	*	*	*				*								

ASiC-E_STV_CN-3.xml contains the following Properties:

- AsicDataObject
- AsicManifest
- AsicAssociatedCades

This test case tests if the metadata signature6.p7s contains 2 CAdES-BES or CAdES-EPES conformant signatures and the first signature is verified correctly on the data object, the second one fails verification (TS 119 164-2 TC/ASiCE/STV/NC3)

ASiC-E_STV_CN.SC12															
Property → TestCase ↓	AEC	ADO	AM	SR	DOR	AAX	AAC	AAT	AFE	AMT	AZIPC	AMIM	AMIC	AMIMD	SPI
ASiC-E_STV_CN-4.xml	*	*	*				*								

ASiC-E_STV_CN-4.xml contains the following Properties:

- AsicDataObject
- AsicManifest
- AsicAssociatedCades

This test case tests if the metadata whose name matches signature.p7s contains 2 CAdES-BES or CAdES-EPES conformant signatures and the first signature is verified correctly on the data object, the second one fails verification. (TS 119 164-2 TC/ASiCE/STV/NC4)

6.4.5 Negative test cases for ASiC-E_STV_T (TestSet ASiC-E_STV_TN).

The following tables (one for each scenario) show the properties of the `ASiC-E_STV_TN` TestSet and wich test cases test them.

ASiC-E_STV_TN.SCOK															
Property → TestCase ↓	AEC	ADO	AM	SR	DOR	AAX	AAC	AAT	AFE	AMT	AZIPC	AMIM	AMIC	AMIMD	SPI
ASiC-E_STV_TN-1.xml	*	*	*					*							
ASiC-E_STV_TN-2.xml	*	*	*					*							

ASiC-E_STV_TN-1.xml contains the following Properties:

- AsicDataObject
- AsicManifest
- AsicAssociatedTst

This test case tests if the metadata timestamp5.tst contains a valid RFC3161 time-stamp token that that fails verification on the ASiCManifest metadata. (TS 119 164-2 TC/ASiC-E/STV/NT1)

6.4.6 Negative test cases for ASiC-E_STV_X (TestSet ASiC-E_STV_XN).

The following tables (one for each scenario) show the properties of the `ASiC-E_STV_XN` TestSet and wich test cases test them.

ASiC-E_STV_XN.SCOK															
Property → TestCase ↓	AEC	ADO	AM	SR	DOR	AAX	AAC	AAT	AFE	AMT	AZIPC	AMIM	AMIC	AMIMD	SPI
ASiC-E_STV_XN-1.xml	*	*				*						*			

ASiC-E_STV_XN-1.xml contains the following Properties:

- AsicDataObject
- AsicMetaInfManifest
- ds:Reference
- ds:Reference
- xades:SigningTime
- Certificate

This test case tests that the metadata whose name matches signatures.xml contains an XAdES-BES conformant signature that fails verification on the data object (TS 119 164-2 TC/ASiC-E/STV/XN1)

ASiC-E_STV_XN.SC11															
Property → TestCase ↓	AEC	ADO	AM	SR	DOR	AAX	AAC	AAT	AFE	AMT	AZIPC	AMIM	AMIC	AMIMD	SPI
ASiC-E_STV_XN-2.xml	*	*				*						*			

ASiC-E_STV_XN-2.xml contains the following Properties:

- AsicDataObject
- AsicDataObject
- AsicMetaInfManifest
- ds:Reference
- ds:Reference
- xades:SigningTime
- Certificate
- ds:Reference
- ds:Reference
- xades:SigningTime

This test case tests that the metadata signatures.xml contains 2 XAdES-BES or XAdES-EPES conformant signatures and the first signature is verified correctly on the data object, the second one fails verification (TS 119 164-2 TC/ASiC-E/STV/NX2)

ASiC-E_STV_XN.SC12															
Property → TestCase ↓	AEC	ADO	AM	SR	DOR	AAX	AAC	AAT	AFE	AMT	AZIPC	AMIM	AMIC	AMIMD	SPI
ASiC-E_STV_XN-3.xml	*	*										*			

ASiC-E_STV_XN-3.xml contains the following Properties:

- AsicDataObject
- AsicDataObject
- AsicMetaInfManifest
- ds:Reference
- ds:Reference
- xades:SigningTime
- Certificate
- ds:Reference
- ds:Reference
- xades:SigningTime

This test case tests that the metadata whose name matches *signatures*.xml contains 2 XAdES-BES or XAdES-EPES conformant signatures and the first signature is verified correctly on the data object, the second one fails verification (TS 119 164-2 TC/ASiC-E/STV/NX3)