



TECHNICAL SPECIFICATION

**Electronic Signatures and Infrastructures (ESI);  
Associated Signature Containers (ASiC) -  
Testing Compliance and Interoperability;  
Part 5: Testing Conformance of additional ASiC containers**

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## Foreword

This Technical Specification (TS) has been produced by ETSI Technical Committee Electronic Signatures and Infrastructures (ESI).

The present document is part 5 of a multi-part deliverable covering Associated Signature Containers (ASiC) - Testing Conformance and Interoperability. Full details of the entire series can be found in part 1 [i.2].

A tool implementing the present document has been developed and is accessible at <http://signatures-conformance-checker.etsi.org/>

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## Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the [ETSI Drafting Rules](#) (Verbal forms for the expression of provisions).

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# 1 Scope

The present document defines the sets of checks required for testing conformance of ASiC containers against:

- ASiC containers conforming to building blocks defined in ETSI EN 319 162-1 [1] and containing extended CADES [i.5] and extended XAdES [i.6] digital signatures, expanding the scope of ASiC baseline containers also defined in ETSI EN 319 162-1 [1]; and
- additional containers defined in ETSI EN 319 162-2 [2]. The set of checks that are common with ASiC baseline containers, are defined in ETSI TS 119 164-4 [5] and referenced when needed.

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## 2 References

### 2.1 Normative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found at <http://docbox.etsi.org/Reference>.

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The following referenced documents are necessary for the application of the present document.

- [1] ETSI EN 319 162-1: "Electronic Signatures and Infrastructures (ESI); Associated Signature Containers (ASiC); Part 1: Building blocks and ASiC baseline containers".
- [2] ETSI EN 319 162-2: "Electronic Signatures and Infrastructures (ESI); Associated Signature Containers (ASiC); Part 2: Additional ASiC containers".
- [3] ETSI TS 119 124-5: "Electronic Signatures and Infrastructures (ESI); CADES digital signatures - Testing Conformance and Interoperability; Part 5: Testing conformance of extended CADES signatures".
- [4] ETSI TS 119 134-5: "Electronic Signatures and Infrastructures (ESI); XAdES digital signatures - Testing Compliance & Interoperability; Part 5: Conformance Testing for XAdES Baseline Profile".
- [5] ETSI TS 119 164-4: "Electronic Signatures and Infrastructures (ESI); Associated Signature Containers (ASiC) - Testing Compliance and Interoperability; Part 4: Testing conformance of ASiC baseline containers".

### 2.2 Informative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

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The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

- [i.1] OASIS: "Test Assertions Guidelines Version 1.0", 19 June 2013. OASIS Committee Note 02.

NOTE: Available at <http://docs.oasis-open.org/tag/guidelines/v1.0/cn02/guidelines-v1.0-cn02.html>.

- [i.2] ETSI TR 119 164-1: "Electronic Signatures and Infrastructures (ESI); Associated Signature Containers (ASiC) - Testing Conformance and Interoperability; Part 1: Overview".
- [i.3] ETSI TR 119 001: "Electronic Signatures and Infrastructures (ESI); The framework for standardization of signatures; Definitions and abbreviations".
- [i.4] ETSI EN 319 122-2: "Electronic Signatures and Infrastructures (ESI); CAAdES digital signatures; Part 2: Extended CAAdES signatures".
- [i.5] ETSI EN 319 132-2: "Electronic Signatures and Infrastructures (ESI); XAdES digital signatures; Part 2: Extended XAdES signatures".
- [i.6] IETF RFC 3161: "Internet X.509 Public Key Infrastructure Time-Stamp Protocol (TSP)".
- [i.7] IETF RFC 5816: "ESSCertIDv2 Update for RFC 3161".
- [i.8] IETF RFC 4998: "Evidence Record Syntax (ERS)".
- [i.9] IETF RFC 6283: "Extensible Markup Language Evidence Record Syntax (XMLERS)".
- [i.10] OASIS: "Open Document Format for Office Applications (OpenDocument) Version 1.2; Part 3: Packages" 29 September 2011.
- [i.11] ISO/IEC TS 30135 (all parts): "Information technology -- Digital publishing -- EPUB3".

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## 3 Definitions and abbreviations

### 3.1 Definitions

For the purposes of the present document, the terms and definitions given in ETSI TR 119 001 [i.3] and in the Test Assertions Guidelines [i.1] apply. In case of contrast the former prevails.

### 3.2 Abbreviations

For the purposes of the present document, the abbreviations given in ETSI TR 119 001 [i.3] and the following apply:

ACS	Additional Container Structure
PKI	Public Key Infrastructure
ACSC	Additional Container Syntactical Conformance
ACST	Additional Container Signature or Time-stamp token
TA	Test Assertion

NOTE: Refer to [i.1].

TAL Test Assertion List

NOTE: Refer to [i.1].

TC	Test Case
URI	Uniform Resource Identifier

## 4 ASiC additional container conformity test specification overview

The present document complements ETSI TS 119 164-4 [5] (conformance testing of ASiC baseline containers) by specifying tests to be performed for testing conformance of ASiC containers supporting specific requirements not supported by ASiC baseline containers but still complying with the ASiC building blocks specified in ETSI EN 319 162-1 [1]. This clause describes the overall approach used for testing conformance of these additional containers.

In particular **ASiC additional containers**, in scope of the present document, shall be:

- 1) ASiC additional containers obtained by expanding in scope ASiC baseline containers, in conformance to the ASiC building blocks specified in ETSI EN 319 162-1 [1] clause 4 and allowing use of extended CADES signatures (ETSI EN 319 122-2 [i.4]) and extended CADES signatures (ETSI EN 319 132-2 [i.5]); or
- 2) ASiC additional containers specified in ETSI EN 319 162-2 [2].

The conformance test are defined:

- extending ETSI TS 119 164-4 [5] with conformance tests defined for extended CADES digital signatures in ETSI TS 119 124-5 [3] and conformance tests defined for extended XAdES digital signatures defined in ETSI TS 119 134-5 [4]; and
- defining conformance tests considering the additional container types specified in ETSI EN 319 162-2 [2].

The conformance test definitions are based on test assertions work produced by OASIS in "Test Assertions Guidelines Version 1.0" [i.1].

Each test assertion includes the following information:

- 1) Unique identifier for further referencing.
- 2) Reference to the **Normative source** for the test.
- 3) The **Target** of the assertion.
- 4) The **Prerequisite** specifies the conditions under which the TA is applicable/can be performed.
- 5) **Predicate** fully and unambiguously defining the assertion to be tested.
- 6) **Prescription level**: Three levels are defined: mandatory, recommended and permitted, whose semantics is to be interpreted as described in clause 3.1.2 of [i.1].
- 7) **Tag**: information on the element tested by the assertion.

## 5 Testing Simple Associated Signature Containers (ASiC-S)

### 5.1 Test Assertions for ASiC-S

#### 5.1.1 ASiC-S test assertions for Additional Container Structure

All the test assertions related to the first conformance layer, the Additional Container Structure (ACS), are grouped in a Test Assertion List defined as follows:

**TA List id:** TAL/ASiC-S/ACS

**List Description:** all TAs describing ACS requirements for ASiC-S additional containers

**List Members:** TA/ASiC-S/ACS/1 ... 6

The Test Assertions that belong to this Test Assertion List are specified as follows:

**TA id:** TA/ASiC-S/ACS/1

**Normative Source:** ASiC ETSI EN 319 162-1 [1] clause 4.2 item 1 and 2

**Target:** ASiC generator claiming conformance to ASiC-S additional container

**Predicate:** The ZIP format, with the limitations specified in the Normative Source referred above, shall be used to bind the contained objects into a single container

**Prescription Level:** mandatory

**Tag:** conformance layer = 1 (ACS); Container type = ASiC-S additional container

**TA id:** TA/ASiC-S/ACS/2

**Normative Source:** ETSI EN 319 162-1 [1] clause 4.3.3.1 item 2

**Target:** ASiC generator claiming conformance to ASiC-S additional container

**Predicate:** ASiC File extension is ".asics" or ".scs" if the operating systems and/or file systems do not allow more than 3 characters file extensions or ".zip".

**Prescription Level:** mandatory

**Tag:** conformance layer = 1 (ACS); Container type = ASiC-S additional container

**TA id:** TA/ASiC-S/ACS/3

**Normative Source:** ETSI EN 319 162-1 [1] clause 4.3.3.1 item 3

**Target:** ASiC generator claiming conformance to ASiC-S additional container

**Predicate:** The comment field in the ZIP file header is set with "mimetype=" followed by the media type of the data held in the file.

**Prescription Level:** permitted

**Tag:** conformance layer = 1 (ACS); Container type = ASiC-S additional container

**TA id:** TA/ASiC-S/ACS/4

**Normative Source:** ETSI EN 319 162-1 [1] clause 4.3.3.1 item 1 and clause A.1

**Target:** ASiC generator claiming conformance to ASiC-S additional container

**Predicate:** mimetype is encoded as specified in ETSI EN 319 162-1 [1] clause A.1 and is set according to clause 4.3.3.1 item 1.

**Prescription Level:** mandatory if file extension is ".zip"; else recommended

**Tag:** conformance layer = 1 (ACS); Container type = ASiC-S additional container

**TA id:** TA/ASiC-S/ACS/5

**Normative Source:** ETSI EN 319 162-1 [1] clause 4.4.3.2 item 3 and 4

**Target:** ASiC generator claiming conformance to ASiC-S additional container

**Predicate:** META-INF folder is present and contains one file named timestamp.tst, signature.p7s, signatures.xml, "evidencerecord.ers" or "evidencerecord.xml".

**Prescription Level:** mandatory

**Tag:** conformance layer = 1 (ACS); Container type = ASiC-S additional container

**TA id:** ASiC-S/ACS/6

**Normative Source:** ETSI EN 319 162-1 [1] clause 4.4.3.2 item 2

**Target:** ASiC generator claiming conformance to ASiC-S additional container

**Predicate:** a single file object, in addition to the optional mimetype, is present in the root folder.

**Prescription Level:** mandatory

**Tag:** conformance layer = 1 (ACS); Container type = ASiC-S additional container

## 5.1.2 ASiC-S test assertions for Additional Container Syntactical Conformance

All the test assertions related to the second conformance layer, the Additional Container Syntactical Conformance (ACSC), are grouped in a Test Assertion List defined as follows:

**TA List id:** TAL/ASiC-S/ACSC

**List Description:** all TAs describing ACSC requirements for ASiC-S containers - see clause 4.3 of ETSI EN 319 162-1 [1]

**List Members:** TA/ASiC-S/ACSC/1 ... 8

The Test Assertions that belong to this Test Assertion List are specified as follows:

**TA id:** TA/ASiC-S/ACSC/1

**Normative Source:** ETSI EN 319 162-1 [1] clause 4.3.3.2 item 4b and ETSI TS 119 124-5 [3] clause 5

**Target:** ASiC generator claiming conformance to ASiC-S with CADES additional container

**Prerequisite:** TAL/ASiC-S/ACS conformance verified and the expected input is ASiC-S CADES.

**Predicate:** signature.p7s is present and fulfils the requirements specified in clause 5 of ETSI TS 119 124-5 [3].

**Prescription Level:** mandatory

**Tag:** assertion layer = 2 (ACSC); Container type = ASiC-S with CADES additional container



**TA id:** TA/ASiC-S/ACSC/2

**Normative Source:** ETSI EN 319 162-1 [1] clause 4.3.3.2 item 4c and ETSI TS 119 134-5 [4] clause 5

**Target:** ASiC generator claiming conformance to ASiC-S with XAdES additional container

**Prerequisite:** TAL/ASiC-S/ACS conformance verified and the expected input is ASiC-S XAdES.

**Predicate:** signatures.xml is present, conformant to the schema specified in ETSI EN 319 162-1 [1] §A.5 and each ds:Signature element that is present fulfils the requirements specified in clause 5 of ETSI TS 119 134-5 [4]

**Prescription Level:** mandatory

**Tag:** assertion layer = 2 (ACSC); Container type = ASiC-S with XAdES additional container

**TA id:** TA/ASiC-S/ACSC/3

**Normative Source:** ETSI EN 319 162-2 [2] clause 4.2.1 items a) and c)

**Target:** ASiC generator claiming conformance to ASiC-S Time assertion additional container

**Prerequisite:** TAL/ASiC-S/ACS conformance verified the expected input is ASiC-S Time assertion with a time-stamp token

**Predicate:** timestamp.tst compliant with IETF RFC 3161 [i.6] as updated by IETF RFC 5816 [i.7]

**Prescription Level:** mandatory

**Tag:** assertion layer = 2 (ACSC); Container type = ASiC-S Time assertion additional container

**TA id:** TA/ASiC-S/ACSC/4

**Normative Source:** ETSI EN 319 162-2 [2] clause 4.2.1 item d) and ETSI EN 319 162-1 [1] clause A.7

**Target:** ASiC generator claiming conformance to ASiC-S Time assertion additional container

**Prerequisite:** TAL/ASiC-S/ACS and TA/ASiC-S/ACSC/3 conformance verified the expected input is ASiC-S Time assertion with a time-stamp token and long term attributes

**Predicate:** one or more ASiCArchiveManifest files are present and conforms to comply with ASiC part 1 [2], clause A.7

**Prescription Level:** mandatory

**Tag:** assertion layer = 2 (ACSC); Container type = ASiC-S Time assertion additional container

**TA id:** TA/ASiC-S/ACSC/5

**Normative Source:** ETSI EN 319 162-2 [2] clause 4.2.1 item d)

**Target:** ASiC generator claiming conformance to ASiC-S Time assertion additional container

**Prerequisite:** TA/ASiC-S/ACSC/4 conformance verified the expected input is ASiC-S Time assertion with a time-stamp token and long term attributes

**Predicate:** one \*timestamp\*.tst for each ASiCArchiveManifest file is present whose actual file name matches the value of the URI attribute of the SigReference element.

**Prescription Level:** mandatory

**Tag:** assertion layer = 2 (ACSC); Container type = ASiC-S Time assertion additional container

**TA id:** TA/ASiC-S/ACSC/6

**Normative Source:** ETSI EN 319 162-2 [2] clause 4.2.1 item d)

**Target:** ASiC generator claiming conformance to ASiC-S Time assertion additional container

**Prerequisite:** TA/ASiC-S/ACSC/5 conformance verified the expected input is ASiC-S Time assertion with a time-stamp token and long term attributes

**Predicate:** each \*timestamp\*.tst is compliant with IETF RFC 3161 [i.6] as updated by IETF RFC 5816 [i.7]

**Prescription Level:** mandatory

**Tag:** assertion layer = 2 (ACSC); Container type = ASiC-S Time assertion additional container

**TA id:** TA/ASiC-S/ACSC/7

**Normative Source:** ETSI EN 319 162-2 [2] clause 4.2.1 items a) and c)

**Target:** ASiC generator claiming conformance to ASiC-S Time assertion additional container

**Prerequisite:** TAL/ASiC-S/ACS conformance verified the expected input is ASiC-S time assertion with evidencerecord.ers present

**Predicate:** evidencerecord.ers compliant with IETF RFC 4998 [i.8]

**Prescription Level:** mandatory

**Tag:** assertion layer = 2 (ACSC); Container type = ASiC-S Time assertion additional container

**TA id:** TA/ASiC-S/ACSC/8

**Normative Source:** ETSI EN 319 162-2 [2] clause 4.2.1 items a) and c)

**Target:** ASiC generator claiming conformance to ASiC-S Time assertion additional container

**Prerequisite:** TAL/ASiC-S/ACS conformance verified the expected input is ASiC-S time assertion with evidencerecord.xml present

**Predicate:** evidencerecord.xml compliant with IETF RFC 6283 [i.9]

**Prescription Level:** mandatory

**Tag:** assertion layer = 2 (ACSC); Container type = ASiC-S Time assertion additional container

### 5.1.3 Test assertions for ASiC-S ACST conformance

All the test assertions related to the third conformance layer, the Additional Container Signature or Timestamp token (ACST) conformance, are grouped in a Test Assertion List defined as follows:

**TA List id:** TAL/ASiC-S/ACST

**List Description:** all TAs describing ACST conformance requirements for ASiC-S additional containers

**List Members:** TA/ASiC-S/ACST/1 ... 16