

ETSI EN 319 412-1 V1.4.4 (2021-05)



Electronic Signatures and Infrastructures (ESI); Certificate Profiles; Part 1: Overview and common data structures

[ETSI EN 319 412-1 V1.4.4 \(2021-05\)](https://standards.iteh.ai/catalog/standards/sist/6f10d385-d860-4b1f-ac62-8cc0f32bf323/etsi-en-319-412-1-v1-4-4-2021-05)

<https://standards.iteh.ai/catalog/standards/sist/6f10d385-d860-4b1f-ac62-8cc0f32bf323/etsi-en-319-412-1-v1-4-4-2021-05>

Reference

REN/ESI-0019412-1v142

Keywordse-commerce, electronic signature, security,
trust services**ETSI**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 - APE 7112B
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° w061004871

Important noticeThe present document can be downloaded from:
<http://www.etsi.org/standards-search>

The present document may be made available in electronic versions and/or in print. The content of any electronic and/or print versions of the present document shall not be modified without the prior written authorization of ETSI. In case of any existing or perceived difference in contents between such versions and/or in print, the prevailing version of an ETSI deliverable is the one made publicly available in PDF format at www.etsi.org/deliver.

Users of the present document should be aware that the document may be subject to revision or change of status.

Information on the current status of this and other ETSI documents is available at

<https://portal.etsi.org/TB/ETSIDeliverableStatus.aspx>

If you find errors in the present document, please send your comment to one of the following services:

<https://portal.etsi.org/People/CommitteeSupportStaff.aspx>

Notice of disclaimer & limitation of liability

The information provided in the present deliverable is directed solely to professionals who have the appropriate degree of experience to understand and interpret its content in accordance with generally accepted engineering or other professional standard and applicable regulations.

No recommendation as to products and services or vendors is made or should be implied.

In no event shall ETSI be held liable for loss of profits or any other incidental or consequential damages.

Any software contained in this deliverable is provided "AS IS" with no warranties, express or implied, including but not limited to, the warranties of merchantability, fitness for a particular purpose and non-infringement of intellectual property rights and ETSI shall not be held liable in any event for any damages whatsoever (including, without limitation, damages for loss of profits, business interruption, loss of information, or any other pecuniary loss) arising out of or related to the use of or inability to use the software.

Copyright Notification

No part may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm except as authorized by written permission of ETSI.

The content of the PDF version shall not be modified without the written authorization of ETSI.

The copyright and the foregoing restriction extend to reproduction in all media.

© ETSI 2021.
All rights reserved.

Contents

Intellectual Property Rights	4
Foreword.....	4
Modal verbs terminology.....	5
Introduction	5
1 Scope	6
2 References	6
2.1 Normative references	6
2.2 Informative references.....	6
3 Definition of terms, symbols and abbreviations.....	7
3.1 Terms.....	7
3.2 Symbols.....	7
3.3 Abbreviations	8
4 ETSI EN 319 412 certificate profiles	8
4.1 General approach.....	8
4.2 Overview of other parts of ETSI EN 319 412	8
4.2.1 ETSI EN 319 412-2	8
4.2.2 ETSI EN 319 412-3	8
4.2.3 ETSI EN 319 412-4	9
4.2.4 ETSI EN 319 412-5	9
5 Common data structures.....	9
5.1 Semantics identifiers	9
5.1.1 General.....	9
5.1.2 ASN.1 module	10
5.1.3 Natural person semantics identifier	10
5.1.4 Legal person semantics identifier	11
5.1.5 eIDAS Natural person semantics identifier	12
5.1.6 eIDAS Legal person semantics identifier	12
5.2 Certificate Extensions regarding Validity Assured Certificate.....	12
5.2.1 Validity Assured General.....	12
5.2.2 Validity Assured - Short Term.....	13
5.2.3 ASN.1 Module.....	13
Annex A (informative): Change History	14
History	15

Intellectual Property Rights

Essential patents

IPRs essential or potentially essential to normative deliverables may have been declared to ETSI. The declarations pertaining to these essential IPRs, if any, are publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: "*Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards*", which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (<https://ipr.etsi.org/>).

Pursuant to the ETSI Directives including the ETSI IPR Policy, no investigation regarding the essentiality of IPRs, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

Trademarks

The present document may include trademarks and/or tradenames which are asserted and/or registered by their owners. ETSI claims no ownership of these except for any which are indicated as being the property of ETSI, and conveys no right to use or reproduce any trademark and/or tradename. Mention of those trademarks in the present document does not constitute an endorsement by ETSI of products, services or organizations associated with those trademarks.

DECT™, **PLUGTESTS™**, **UMTS™** and the ETSI logo are trademarks of ETSI registered for the benefit of its Members. **3GPP™** and **LTE™** are trademarks of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners. **oneM2M™** logo is a trademark of ETSI registered for the benefit of its Members and of the oneM2M Partners. **GSM®** and the GSM logo are trademarks registered and owned by the GSM Association.

ITih STANDARD PREVIEW
(standards.iteh.ai)

Foreword

This European Standard (EN) has been produced by ETSI Technical Committee Electronic Signatures and Infrastructures (ESI).

ETSI EN 319 412-1 V1.4.4 (2021-05)

<https://standards.iteh.ai/catalog/standards/sist/61104265-8000-7611/etsi-en-319-412-1-v1-4-4-2021-05>

The present document is part 1 of a multi-part deliverable covering the Certificate Profiles, as identified below:

- Part 1:** "Overview and common data structures";
- Part 2: "Certificate profile for certificates issued to natural persons";
- Part 3: "Certificate profile for certificates issued to legal persons";
- Part 4: "Certificate profile for web site certificates";
- Part 5: "QCStatements".

The present document was previously published as ETSI TS 119 412-1 [i.14].

National transposition dates

Date of adoption of this EN:	24 May 2021
Date of latest announcement of this EN (doa):	31 August 2021
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	28 February 2022
Date of withdrawal of any conflicting National Standard (dow):	28 February 2022

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).

"**must**" and "**must not**" are **NOT** allowed in ETSI deliverables except when used in direct citation.

Introduction

ITU and ISO issued standards for certification of public keys in Recommendation ITU X.509 | ISO/IEC 9594-8 [i.3] which are used for the security of communications and data for a wide range of electronic applications.

Regulation (EU) No 910/2014 [i.9] of the European Parliament and of the Council of 23 July 2014 on electronic identification and trust services for electronic transactions in the internal market and repealing Directive 1999/93/EC defines requirements on specific types of certificates named "qualified certificates". Implementation of Directive 1999/93/EC [i.1], superseded by the Regulation (EU) No 910/2014 [i.9], and deployment of certificate infrastructures throughout Europe as well as in countries outside of Europe, have resulted in a variety of certificate implementations for use in public and closed environments, where some are declared as qualified certificates while others are not.

Applications need support from standardized and interoperable identity certificate profiles, in particular when applications are used for electronic signatures, authentication and secure electronic exchange in open environments and international trust scenarios, but also when certificates are used in local application contexts.

This multi-part deliverable aims to maximize the interoperability of systems issuing and using certificates both in the European context under the Regulation (EU) No 910/2014 [i.9] and in the wider international environment.

(standards.iteh.ai)

[ETSI EN 319 412-1 V1.4.4 \(2021-05\)](#)

<https://standards.iteh.ai/catalog/standards/sist/6f10d385-d860-4b1f-ac62-8cc0f32bf323/etsi-en-319-412-1-v1-4-4-2021-05>

1 Scope

The present document provides an overview of the Recommendation ITU-T X.509 | ISO/IEC 9594-8 [i.3] based certificate profiles and the statements for EU Qualified Certificates specified in other parts of ETSI EN 319 412 ([i.4] to [i.7]). It specifies common data structures that are referenced from other parts of ETSI EN 319 412 ([i.4] to [i.7]).

The profiles specified in this multi-part deliverable aim to support both the Regulation (EU) No 910/2014 [i.9] and use of certificates in a wider international context. Within the European context, it aims to support both EU Qualified Certificates and other forms of certificate.

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 <https://docbox.etsi.org/Reference>.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

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

- [1] IETF RFC 3739: "Internet X.509 Public Key Infrastructure: Qualified Certificates Profile".
- [2] ISO 3166-1: "Codes for the representation of names of countries and their subdivisions--Part 1: Country code".
- [3] ETSI TS 119 495: "Electronic Signatures and Infrastructures (ESI); Sector Specific Requirements; Qualified Certificate Profiles and TSP Policy Requirements under the payment services Directive (EU) 2015/2366".
- [4] ISO 17442: "Financial services - Legal Entity Identifier (LEI)".
- [5] eIDAS: "SAML Attribute Profile v1.2", 31 August 2019.

NOTE: available at <https://ec.europa.eu/cefdigital/wiki/download/attachments/82773108/eIDAS%20SAML%20Attribute%20Profile%20v1.2%20Final.pdf?version=2&modificationDate=1571068651772&api=v2>.

- [6] IETF RFC 5912: "New ASN.1 Modules for the Public Key Infrastructure Using X.509 (PKIX)".

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.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

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] Directive 1999/93/EC of the European Parliament and of the Council of 13 December 1999 on a Community framework for electronic signatures.

- [i.2] ETSI EN 319 401: "Electronic Signatures and Infrastructures (ESI); General Policy Requirements for Trust Service Providers".
- [i.3] Recommendation ITU-T X.509 | ISO/IEC 9594-8: "Information technology - Open Systems Interconnection - The Directory: Public-key and attribute certificate frameworks".
- [i.4] ETSI EN 319 412-2: "Electronic Signatures and Infrastructures (ESI); Certificate Profiles; Part 2: Certificate Profile for certificates issued to natural persons".
- [i.5] ETSI EN 319 412-3: "Electronic Signatures and Infrastructures (ESI); Certificate Profiles; Part 3: Certificate Profile for certificates issued to legal persons".
- [i.6] ETSI EN 319 412-4: "Electronic Signatures and Infrastructures (ESI); Certificate Profiles; Part 4: Certificate Profile for web site certificates".
- [i.7] ETSI EN 319 412-5: "Electronic Signatures and Infrastructures (ESI) ; Certificate Profiles; Part 5: QCStatements".
- [i.8] IETF RFC 5246: "The Transport Layer Security (TLS) Protocol Version 1.2".
- [i.9] Regulation (EU) No 910/2014 of the European Parliament and of the Council of 23 July 2014 on electronic identification and trust services for electronic transactions in the internal market and repealing Directive 1999/93/EC.
- [i.10] Recommendation ITU-T X.520 (10/2012): "Information technology - Open Systems Interconnection - The Directory: Selected attribute types".
- [i.11] IETF RFC 5280: "Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile".
- [i.12] Council Directive 2006/112/EC of 28 November 2006 on the common system of value added tax.
- [i.13] Directive (EU) 2015/2366 of the European Parliament and of the Council of 25 November 2015 on payment services in the internal market, amending Directives 2002/65/EC, 2009/110/EC and 2013/36/EU and Regulation (EU) No 1093/2010, and repealing Directive 2007/64/EC.
- [i.14] ETSI TS 119 412-1: "Electronic Signatures and Infrastructures (ESI); Certificate Profiles; Part 1: Overview and common data structures".

3 Definition of terms, symbols and abbreviations

3.1 Terms

For the purposes of the present document, the terms given in ETSI EN 319 401 [i.2] and the following apply:

EU Qualified Certificate: qualified certificate that is stated to be in accordance with Annex I, III or IV of the Regulation (EU) No 910/2014 [i.9] or annex I of the Directive 1999/93/EC [i.1] whichever is in force at the time of issuance

short-term certificate: certificate whose validity period, i.e. the period of time from notBefore through notAfter, inclusive, is shorter than the maximum time to process a revocation request as specified in the certificate practice statement

3.2 Symbols

Void.

3.3 Abbreviations

For the purposes of the present document, the following abbreviations apply:

ASN.1	Abstract Syntax Notation 1
CA	Certification Authority
CRL	Certificate Revocation List
eIDAS	electronic IDentification, Authentication and trust Services
LEI	Legal Entity Identifier
OCSP	Online Certificate Status Protocol
OID	Object Identifier
SAML	Security Assertion Markup Language
TLS	Transport Layer Security protocol

NOTE: As specified in IETF RFC 5246 [i.8].

TSP	Trust Service Provider
UN	United Nations

4 ETSI EN 319 412 certificate profiles

4.1 General approach

All the certificate profiles specified in ETSI EN 319 412 (parts 2 [i.4], 3 [i.5], 4 [i.6], 5 [i.7] and the present document) are based upon IETF RFC 5280 [i.1] for generic profiling of Recommendation ITU-T X.509 | ISO/IEC 9594-8 [i.3]. The certificate profiles specify profiles for both EU Qualified Certificates and non-qualified certificates as relevant. Reference is made to ETSI EN 319 412-5 [i.7] for requirements relating to QCStatements.

4.2 Overview of other parts of ETSI EN 319 412

4.2.1 ETSI EN 319 412-2

Electronic Signatures and Infrastructures (ESI); Certificate Profiles; Part 2: Certificate profile for certificates issued to natural persons.

Scope: This part specifies the requirements on certificate content for TSPs issuing certificates to natural persons. It provides a certificate profile, which facilitates interoperability of certificates issued to natural persons for the purposes of supporting digital signatures, peer entity authentication, data authentication as well as data confidentiality. It specifies a profile for both EU Qualified Certificates as specified in the Regulation (EU) No 910/2014 [i.9], and non-qualified certificates. When certificates for natural persons are issued as EU Qualified Certificates, it makes reference to ETSI EN 319 412-5 [i.7] for requirements relating to QCStatements.

4.2.2 ETSI EN 319 412-3

Electronic Signatures and Infrastructures (ESI); Certificate Profiles; Part 3: Certificate profile for certificates issued to legal persons.

Scope: This part specifies the requirements on certificate content for TSPs issuing certificates to legal persons. It provides a certificate profile, which facilitates interoperability of certificates issued to legal persons for the purposes of supporting digital signatures, peer entity authentication, data authentication as well as data confidentiality. It specifies a profile for both EU Qualified Certificates and non-qualified certificates. When certificates for legal persons are issued as EU Qualified Certificates, it makes reference to ETSI EN 319 412-5 [i.7] for requirements relating to QCStatements.

4.2.3 ETSI EN 319 412-4

Electronic Signatures and Infrastructures (ESI); Certificate Profiles; Part 4: Certificate profile for web site certificates.

Scope: This part specifies the requirements on certificate content for TSPs issuing website certificates for sites that are accessed via the TLS protocol as specified in IETF RFC 5246 [i.8]. It provides a certificate profile, which enables interoperability of website certificates issued to legal or natural persons. It specifies a profile for both EU Qualified Certificates and non-qualified certificates. When certificates for web site authentication are issued as EU Qualified Certificates, it makes reference to ETSI EN 319 412-5 [i.7] for requirements relating to QCStatements.

4.2.4 ETSI EN 319 412-5

Electronic Signatures and Infrastructures (ESI); Certificate Profiles; Part 5: QCStatements.

Scope: This part specifies the requirements on the QCStatements as required for qualified certificates as specified in parts 2 to 4 [i.4], [i.5] and [i.6] of ETSI EN 319 412.

The QCStatements defined in clause 4.3 of ETSI EN 319 412-5 [i.7] may be applied to regulatory environments outside the EU. Other requirements specified in clause 4 of [i.7] are specific to Regulation (EU) No 910/2014 [i.9] but may be adapted for other regulatory environments.

5 Common data structures

iTeh STANDARD PREVIEW

5.1 Semantics identifiers

5.1.1 General

ETSI EN 319 412-1 V1.4.4 (2021-05)

<https://standards.iteh.ai/catalog/standards/sist/6f10d385-d860-4b1f-ac62-509101010101/etsi-en-319-412-1-v1-4-4-2021-05>

Subject and issuer names (Recommendation ITU-T X.509 [i.3]) can include attributes that do not disclose the semantics of its information content. `serialNumber` (Recommendation ITU-T X.509 [i.3]) and `organizationIdentifier` (Recommendation ITU-T X.520 [i.10]) are examples of such attributes. The `serialNumber` attribute can contain a national identification number, passport number or any type of locally defined identifier such as random or pseudo-random generated identifier. The `organizationIdentifier` attribute can contain several types of organizational identifiers.

IETF RFC 3739 [1], clause 3.2.6.1 defines the predefined statement "qcStatement-2" identified by the OID `id-qcs-pkixQCSyntax-v2` with the `SemanticsInformation` syntax.

The `SemanticsInformation` type, when present, provides information about the semantics of data stored in attributes and/or names in the certificate.

The semantics identifiers in the following clauses use 2 character ISO 3166-1 [2] country codes (Alpha-2) to specify the country where the identifier is registered. Trans-national country codes as specified in ISO 3166-1 [2] may be used when relevant such as EU (European Union) and UN (United Nations). User-defined country code 'XG' may be used for identifiers allocated under a global scheme. Identifiers using user-defined country codes shall be interpreted under the context of the certificate issuer as there is no guarantee that such identifier is unique across all issuers. Unassigned codes should not be used.

NOTE: The semantics identifiers in the following clauses define semantics information for attributes stored in the subject field. No corresponding mechanism is defined in the present document for specifying semantics information for attributes in the issuer field. IETF RFC 5280 [i.11] path validation requires the issuer field to be consistent with the subject field of the CA certificate assigned to the issuing CA. Name attributes of the issuing CA can be constructed according the semantics identifier defined in the following clauses and stored in the subject field of the CA certificate. In such case, the appropriate place to include semantics identifiers for these attributes is in the CA certificate. Consequently, a relying party will have to consult information in the issuing CA certificate to obtain semantics information about attributes in the issuer field of a certificate.

5.1.2 ASN.1 module

This clause defines semantics identifiers for inclusion in qcStatement-2.

The syntax for the natural person semantics identifier and legal person semantics identifier shall be as defined by the following ASN.1 module:

```
ETSI semanticsIdentifierMod { itu-t(0) identified-organization(4) etsi(0) id-cert-
profile(194121) id-mod(0) id-mod-semantics-identifier(0) v2(1)}

DEFINITIONS EXPLICIT TAGS ::=
BEGIN

-- EXPORTS All -

-- Semantics identifiers

id-etsi-qcs-semantics-identifiers OBJECT IDENTIFIER ::= { itu-t(0) identified-
organization(4) etsi(0) id-cert-profile(194121) 1 }

-- Semantics identifier for natural person identifier

id-etsi-qcs-semanticsId-Natural OBJECT IDENTIFIER ::= { id-etsi-qcs-semantics-
identifiers 1 }

-- Semantics identifier for legal person identifier

id-etsi-qcs-SemanticsId-Legal OBJECT IDENTIFIER ::= { id-etsi-qcs-semantics-
identifiers 2 }

-- Semantics identifier for eIDAS natural person identifier
id-etsi-qcs-semanticsId-eIDASNatural OBJECT IDENTIFIER ::= { id-etsi-qcs-semantics-identifiers 3 }

-- Semantics identifier for legal person identifier
id-etsi-qcs-SemanticsId-eIDASLegal OBJECT IDENTIFIER ::= { id-etsi-qcs-semantics-identifiers 4 }

END
```

The following clauses provide the semantics definitions of the natural person and legal person semantics identifiers.

5.1.3 Natural person semantics identifier

The semantics of id-etsi-qcs-SemanticsId-Natural shall be as follows.

When the natural person semantics identifier is included, any present serialNumber attribute in the subject field shall contain information using the following structure in the presented order:

- 3 character natural person identity type reference;
- 2 character ISO 3166-1 [2] country code;
- hyphen-minus "-" (0x2D (ASCII), U+002D (UTF-8)); and
- identifier (according to country and identity type reference).

The three initial characters shall have one of the following defined values:

- 1) "PAS" for identification based on passport number.
- 2) "IDC" for identification based on national identity card number.
- 3) "PNO" for identification based on (national) personal number (national civic registration number).
- 4) "TAX" for identification based on a personal tax reference number issued by a national tax authority. This value is **deprecated**. The value "TIN" should be used instead.