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Electronic Signatures and Infrastructures (ESI) - Policy and security requirements for Trust Service Providers issuing certificates - Part 1: General requirements

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**Electronic Signatures and Infrastructures (ESI);
Policy and security requirements for
Trust Service Providers issuing certificates;
Part 1: General requirements**

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Foreword

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

The present document is part 1 of a multi-part deliverable covering the Policy and security requirements for Trust Service Providers issuing certificates, as identified below:

ETSI EN 319 411-1: "General requirements";

ETSI EN 319 411-2: "Requirements for trust service providers issuing EU qualified certificates";

NOTE: Part 3 of this multi-part deliverable has been withdrawn.

ETSI TR 119 411-4: "Checklist supporting audit of TSP against ETSI EN 319 411-1 or ETSI EN 319 411-2";

ETSI TR 119 411-5: "Guidelines for the coexistence of web browser and EU trust controls".

The present document is derived from the requirements specified in ETSI TS 102 042 [i.6].

National transposition dates

Date of adoption of this EN:	4 October 2023
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Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 July 2024
Date of withdrawal of any conflicting National Standard (dow):	31 July 2024

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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Introduction

Electronic commerce, in its broadest sense, is a way of doing business and communicating across public and private networks. An important requirement of electronic commerce is the ability to identify the originator and protect the confidentiality of electronic exchanges. This is commonly achieved by using cryptographic mechanisms which are supported by a Trust Service Provider (TSP) issuing certificates, commonly called a Certification Authority (CA).

For participants of electronic commerce to have confidence in the security of these cryptographic mechanisms they need to have confidence that the TSP has properly established procedures and protective measure in order to minimize the operational and financial threats and risks associated with public key cryptographic systems.

The present document is aiming to meet the general requirements of the international community to provide trust and confidence in electronic transactions including, amongst others, applicable requirements from Regulation (EU) No 910/2014 [i.14] and those from CA/Browser Forum, BRG [6].

Bodies wishing to establish policy requirements for TSPs issuing certificates in a regulatory context other than the EU can base their requirements on those specified in the present document and specify any additional requirements in a manner similar to ETSI EN 319 411-2 [i.5], which builds on the present document requirements so as to benefit from the use of generally accepted global best practices.

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1 Scope

The present document specifies generally applicable policy and security requirements for Trust Service Providers (TSPs) issuing public key certificates, including trusted web site certificates.

The policy and security requirements are defined in terms of requirements for the issuance, maintenance and life-cycle management of certificates. These policy and security requirements support several reference certificate policies, defined in clauses 4 and 5.

A framework for the definition of policy requirements for TSPs issuing certificates in a specific context where particular requirements apply is defined in clause 7.

The present document covers requirements for CA hierarchies, however this is limited to supporting the policies as specified in the present document. It does not include requirements for root CAs and intermediate CAs for other purposes.

The present document is applicable to:

- the general requirements of certification in support of cryptographic mechanisms, including digital signatures for electronic signatures and seals;
- the general requirements of certification authorities issuing TLS/SSL certificates;
- the general requirements of the use of cryptography for authentication and encryption.

The present document does not specify how the requirements identified can be assessed by an independent party, including requirements for information to be made available to such independent assessors, or requirements on such assessors.

NOTE: See ETSI EN 319 403 [i.2] for guidance on assessment of TSP's processes and services. The present document references ETSI EN 319 401 [9] for general policy requirements common to all classes of TSP's services.

The present document includes provisions consistent with the requirements from the CA/Browser Forum in EVCG [4] and BRG [6].

2 References

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

- [1] [ISO/IEC 15408 \(parts 1 to 3\)](#): "Information security, cybersecurity and privacy protection - Evaluation criteria for IT security".
- [2] [ETSI EN 319 412-4](#): "Electronic Signatures and Infrastructures (ESI); Certificate Profiles; Part 4: Certificate profile for web site certificates".
- [3] [ISO/IEC 19790:2012](#): "Information technology - Security techniques - Security requirements for cryptographic modules".

- [4] CA/Browser Forum: "[Guidelines for The Issuance and Management of Extended Validation Certificates](#)".
- [5] CA/Browser Forum (V1.8.6): "[Baseline Requirements for the Issuance and Management of Publicly-Trusted Certificates](#)".
- [6] CA/Browser Forum: "[Baseline Requirements for the Issuance and Management of Publicly-Trusted Certificates](#)".
- [7] [ISO/IEC 9594-8/Recommendation ITU-T X.509](#): "Information technology - Open Systems Interconnection - Part 8: The Directory: Public-key and attribute certificate frameworks".
- [8] [IETF RFC 5280](#): "Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile".
- [9] [ETSI EN 319 401](#): "Electronic Signatures and Infrastructures (ESI); General Policy Requirements for Trust Service Providers".
- [10] [ETSI EN 319 412-2](#): "Electronic Signatures and Infrastructures (ESI); Certificate Profiles; Part 2: Certificate profile for certificates issued to natural persons".
- [11] [ETSI EN 319 412-3](#): "Electronic Signatures and Infrastructures (ESI); Certificate Profiles; Part 3: Certificate profile for certificates issued to legal persons".
- [12] [IETF RFC 6960](#): "X.509 Internet Public Key Infrastructure Online Certificate Status Protocol - OCSP".
- [13] [FIPS PUB 140-2 \(2001\)](#): "Security Requirements for Cryptographic Modules".
- [14] [ETSI TS 119 412-1](#): "Electronic Signatures and Infrastructures (ESI); Certificate Profiles; Part 1: Overview and common data structures".
- NOTE: ETSI TS 119 412-1 has been superseded by [ETSI EN 319 412-1](#).
- [15] [ETSI TS 119 461](#): "Electronic Signatures and Infrastructures (ESI); Policy and security requirements for trust service components providing identity proofing of trust service subjects".
- [16] [FIPS PUB 140-3 \(2019\)](#): "Security Requirements for Cryptographic Modules".

2.2 Informative references

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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] [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 319 403: "Electronic Signatures and Infrastructures (ESI); Trust Service Provider Conformity Assessment - Requirements for conformity assessment bodies assessing Trust Service Providers".
- [i.3] IETF RFC 3647: "Internet X.509 Public Key Infrastructure - Certificate Policy and Certification Practices Framework".
- [i.4] ISO 19005 (parts 1 to 3): "Document management - electronic document file format for long-term preservation".

- [i.5] ETSI EN 319 411-2: "Electronic Signatures and Infrastructures (ESI); Policy and security requirements for Trust Service Providers issuing certificates; Part 2: Requirements for trust service providers issuing EU qualified certificates".
- [i.6] ETSI TS 102 042: "Electronic Signatures and Infrastructures (ESI); Policy requirements for certification authorities issuing public key certificates".
- [i.7] ISO/IEC 27002:2013: "Information technology - Security techniques - Code of practice for information security management".
- [i.8] ISO/IEC 7498-2/Recommendation ITU-T X.800: "Data communications network - Open systems interconnection - Security, structure and applications: Security architecture for open systems interconnection for CCITT applications".
- [i.9] [TS 419261](#): "Security requirements for trustworthy systems managing certificates and time-stamps", (produced by CEN).
- [i.10] ETSI TS 119 312: "Electronic Signatures and Infrastructures (ESI); Cryptographic Suites".
- [i.11] IETF RFC 5246: "The Transport Layer Security Protocol Version 1.2".
- [i.12] ETSI TS 119 612: "Electronic Signatures and Infrastructures (ESI); Trusted Lists".
- [i.13] Void.
- [i.14] [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.15] ETSI EN 319 421: "Electronic Signatures and Infrastructures (ESI); Policy and Security Requirements for Trust Service Providers issuing Time-Stamps".
- [i.16] [TS 419221-2](#): "Protection Profiles for TSP cryptographic modules - Part 2: Cryptographic module for CSP signing operations with backup", (produced by CEN).
- [i.17] [TS 419221-3](#): "Protection Profiles for TSP Cryptographic modules - Part 3: Cryptographic module for CSP key generation services", (produced by CEN).
- [i.18] [TS 419221-4](#): "Protection Profiles for TSP cryptographic modules - Part 4: Cryptographic module for CSP signing operations without backup", (produced by CEN).
- [i.19] [EN 419221-5](#): "Protection Profiles for TSP Cryptographic modules - Part 5: Cryptographic module for Trust Services", (produced by CEN).
- [i.20] ETSI TR 119 411-4: "Electronic Signatures and Infrastructures (ESI); Policy and security requirements for Trust Service Providers issuing certificates; Part 4: Checklist supporting audit of TSP against ETSI EN 319 411-1 or ETSI EN 319 411-2".
- [i.21] ETSI TS 119 431-1: "Electronic Signatures and Infrastructures (ESI); Policy and security requirements for trust service providers; Part 1: TSP service components operating a remote QSCD / SCDev".
- [i.22] ETSI TS 119 511: "Electronic Signatures and Infrastructures (ESI); Policy and security requirements for trust service providers providing long-term preservation of digital signatures or general data using digital signature techniques".

3 Definition of terms, symbols, abbreviations and notations

3.1 Terms

For the purposes of the present document, the terms given in ETSI EN 319 401 [9] and the following apply:

auditor: person who assesses conformity to requirements as specified in given requirements documents

NOTE: See ETSI EN 319 403 [i.2].

certificate: public key of a user, together with some other information, rendered un-forgable by encipherment with the private key of the certification authority which issued it

NOTE 1: The term certificate is used for public key certificate within the present document.

NOTE 2: See ISO/IEC 9594-8/Recommendation ITU-T X.509 [7].

Certificate Policy (CP): named set of rules that indicates the applicability of a certificate to a particular community and/or class of application with common security requirements

NOTE 1: See clause 4.2 for explanation of the relative role of certificate policies and certification practice statement.

NOTE 2: This is a specific type of trust service policy as specified in ETSI EN 319 401 [9].

NOTE 3: See ISO/IEC 9594-8/Recommendation ITU-T X.509 [7].

Certificate Revocation List (CRL): signed list indicating a set of certificates that have been revoked by the certificate issuer

NOTE 1: Within the scope of the present document the set of certificates is related to end user certificates.

NOTE 2: See ISO/IEC 9594-8/Recommendation ITU-T X.509 [7].

Certification Authority (CA): authority trusted by one or more users to create and assign certificates

NOTE 1: A CA can be:

- 1) a trust service provider that creates and assigns public key certificates; or
- 2) a technical certificate generation service that is used by a certification service provider that creates and assign public key certificates.

NOTE 2: See ISO/IEC 9594-8/Recommendation ITU-T X.509 [7].

Certification Authority Revocation List (CARL): revocation list containing a list of CA-certificates issued to certification authorities that have been revoked by the certificate issuer

NOTE: See ISO/IEC 9594-8/Recommendation ITU-T X.509 [7].

Certification Practice Statement (CPS): statement of the practices which a Certification Authority employs in issuing managing, revoking, and renewing or re-keying certificates

NOTE 1: See IETF RFC 3647 [i.3].

NOTE 2: This is a specific type of Trust Service practice statement as specified in ETSI EN 319 401 [9].

Coordinated Universal Time (UTC): As indicated in ETSI EN 319 401 [9].

cross certificate: certificate that is used to establish a trust relationship between two certification authorities

digital signature: data appended to, or a cryptographic transformation of a data unit that allows a recipient of the data unit to prove the source and integrity of the data unit and protect against forgery e.g. by the recipient

NOTE: See ISO/IEC 7498-2/Recommendation ITU-T X.800 [i.8].

domain name: the label assigned to a node in the Domain Name System

NOTE: See BRG [5].

Domain Validation Certificate (DVC): certificate which has no validated organizational identity information for the subject, only identifying the subject by its domain name

EV certificate: See Extended Validation certificate.

Extended Validation Certificate (EVC): As indicated in the EVCG [4].

high security zone: specific physical location of the security zone (see ETSI EN 319 401 [9], clause 7.8) where the Root CA key is held

Individual Validation Certificate (IVC): certificate that includes validated individual identity information for the subject

Organizational Validation Certificate (OVC): certificate that includes validated organizational identity information for the subject

Publicly-Trusted Certificate: certificate that is trusted by virtue of the fact that its corresponding Root Certificate is distributed as a trust anchor in widely-available application software

Registration Authority (RA): entity that is responsible for identification and authentication of subjects of certificates mainly

NOTE 1: An RA can assist in the certificate application process or revocation process or both.

NOTE 2: See IETF RFC 3647 [i.3].

registration officer: person responsible for verifying information that is necessary for certificate issuance and approval of certification requests

revocation: permanent termination of the certificate's validity before the expiry date indicated in the certificate

revocation officer: person responsible for operating certificate status changes ISO/IEC 7498-2/Recommendation ITU-T X.800 [i.8]

root CA: certification authority which is at the highest level within TSP's domain and which is used to sign subordinate CA(s)

NOTE 1: A Root CA certificate is generally self-signed but the Root-CA can also be certified by a (Root) CA from another domain (e.g. cross-certification, Root-Signed in the context of a root-signing program, etc.).

NOTE 2: A Root CA can be used as the Trust Anchor for many applications (e.g. browsers) but nothing prevents the TSP to present subordinate CAs for this purpose, according to the business context.

secure cryptographic device: device which holds the user's private key, protects this key against compromise and performs signing or decryption functions on behalf of the user

secure zone: area (physical or logical) protected by physical and logical controls that appropriately protect the confidentiality, integrity, and availability of the systems used by the TSP

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

NOTE: Validity period as defined by IETF RFC 5280 [8].

subject: entity identified in a certificate as the holder of the private key associated with the public key given in the certificate

NOTE: Relationship between subscriber and subject is described in clauses 5.4.2 and 6.3.5.

subordinate CA: certification authority whose Certificate is signed by the Root CA, or another Subordinate CA

NOTE: A subordinate CA normally either issues end user certificates or other subordinate CA certificates.

trust anchor: entity that is trusted by a relying party and used for validating certificates in certification paths

NOTE 1: See ISO/IEC 9594-8/Recommendation ITU-T X.509 [7].

NOTE 2: A Trust Anchor can also be a Root CA.

NOTE 3: Examples of trust anchors are as in a trusted list (ETSI TS 119 612 [i.12]) or a list of trusted CA certificates distributed by an application software provider.

3.2 Symbols

Void.

3.3 Abbreviations

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

AIA	Authority Information Access
BRG	Baseline Requirements Guidelines
CA	Certification Authority
CAB Forum	CA/Browser Forum
CARL	Certification Authority Revocation List
CP	Certificate Policy
CPS	Certification Practice Statement
CRL	Certificate Revocation List
CSP	Certification Service Provider

NOTE: The more general term Trust Service Provider is used in preference to CSP in the present document except in relation to external references.

CSS	Certificate Status Service
DIS	Dissemination Services
DV	Domain Validated
DVC	Domain Validation Certificate
DVCP	Domain Validation Certificate Policy
EAL	Evaluation Assurance Level
eID	Electronic IDentity
EV	Extended Validation
EVC	Extended Validation Certificate
EVCG	Extended Validation Certificate Guidelines
EVCP	Extended Validation Certificate Policy
FIPS	Federal Information Processing Standard
GEN	Certificate Generation Services
IVC	Individual Validation Certificate
IVCP	Individual Validation Certificate Policy
LCP	Lightweight Certificate Policy
NCP	Normalized Certificate Policy
NCP+	Extended Normalized Certificate Policy
OCSP	Online Certificate Status Protocol
OID	Object IDentifier
OV	Organizational Validated
OVC	Organizational Validation Certificate
OVCPC	Organizational Validation Certificate Policy