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Electronic Signatures and Infrastructures (ESI); Profiles for Trust Service Providers issuing certificates; Part 5: Extension for Qualified Certificate profile

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Foreword

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

National transposition dates				
Date of adoption of this EN:	14 January 2013			
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The present document is part 5 of a multi-part deliverable. Full details of the entire series can be found in part 1 [i.1].

The present document was previously published as TS 101 862 [i.5].

Introduction

The Directive of the European Parliament and of the Council on a Community framework for electronic signatures (1999/93/EC [i.3]) defines requirements on a specific type of certificates named "Qualified Certificates". These certificates are given a specific relevance for acceptance of electronic signatures through the following part of article 5 (Legal effects of electronic signatures):

"Member States shall ensure that advanced electronic signatures which are based on a Qualified Certificate and which are created by a secure-signature-creation device:

- a) satisfy the legal requirements of a signature in relation to data in electronic form in the same manner as a handwritten signature satisfies those requirements in relation to paper-based data; and
- b) are admissible as evidence in legal proceedings."

Directive 1999/93/EC [i.3] defines a Qualified Certificate in article 2 as:

• "'Qualified Certificate' means a certificate which meets the requirements laid down in Annex I and is provided by a certification-service-provider who fulfils the requirements laid down in Annex II".

1 Scope

The present document defines a profile for Qualified Certificates, based on the technical definitions in RFC 3739 [3], that may be used by issuers of Qualified Certificates complying with Annex I and II of the European Electronic Signature Directive 1999/93/EC [i.3].

This Qualified Certificate profile and the IETF Qualified Certificate profile RFC 3739 [3] address Qualified Certificates within different contexts and therefore also use the term Qualified Certificate with slightly different meanings. While the IETF profile uses the term Qualified Certificates within a universal context independent of local legal requirements, this profile uses the term to explicitly describe a Qualified Certificate as defined in the European Electronic Signature Directive 1999/93/EC [i.3].

2 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 reference 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.

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

2.1 Normative references

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

- [1] ITU-T Recommendation X.509/ISO/IEC 9594-8: "Information technology Open systems interconnection The Directory: Public-key and attribute certificate frameworks".
- [2] IETF RFC 5280: "Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile".
- [3] IETF RFC 3739: "Internet X.509 Public Key Infrastructure: Qualified Certificates Profile".
- [4] ITU-T Recommendation X.680-X.699: "Information technology Abstract Syntax Notation One (ASN.1)".
- [5] ISO 4217: "Codes for the representation of currencies and funds".
- [6] ETSI EN 319 411-2: "Electronic Signatures and Infrastructures (ESI); Policy and security requirements for Trust Service Providers issuing certificates; Part 2: Policy requirements for certification authorities issuing qualified certificates".
- [7] IETF RFC 2818: "HTTP Over TLS".
- [8] ITU-T Recommendation X.680/ISO/IEC 8824-1:2008: "Information technology Abstract Syntax Notation One (ASN.1): Specification of basic notation".

2.2 Informative references

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] ETSI TS 119 412-1: "Electronic Signatures and Infrastructures (ESI); Profiles for Trust Service Providers issuing certificates; Part 1: Overview".

[i.2]	ETSI TS 119 412-2: "Electronic Signatures and Infrastructures (ESI); Profiles for Trust Service Providers issuing certificates; Part 2: Certificate Profile for certificates issued to natural persons".
[i.3]	Directive 1999/93/EC of the European Parliament and of the Council of 13 December 1999 on a Community framework for electronic signatures.
[i.4]	ETSI EN 319 401: "Electronic Signatures and Infrastructures (ESI); General Policy Requirements for Trust Service Providers supporting Electronic Signatures".
[i.5]	ETSI TS 101 862: "Qualified Certificate profile".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in EN 319 401 [i.4] apply.

3.2 Abbreviations

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

ASN.1 Abstract Syntax Notation One

NOTE: According to ITU-T Recommendation X.680 (2008)/ISO/IEC 8824-1:2008, Information technology - Abstract Syntax Notation One (ASN.1): Specification of basic notation [8].

CA Certification Authority
CRL Certificate Revocation List

OID Object Identifier

PDS Policy Disclosure Statements SSCD Secure Signature Creation Device URL Uniform Resource Locator

4 Document structure

The normative and informative parts of the present document are provided according to the following document structure:

- Clause 5 contains the core part of the present document, defining the amendments to RFC 3739 [3].
- Annex A provides general information on how the requirements of Annex I of the Directive can be implemented using tools defined in the present document as well as tools in the underlying standards RFC 5280 [2] and ITU-T Recommendation X.509 [1].
- Annex B contains the ASN.1 (X.680-X.699 [4]) modules of the present document.

5 Certificate profile

This profile is based on the Internet certificate profile RFC 3739 [3], which in turn is based on RFC 5280 [2] and the X.509 version 3 [1]. For full implementation of this profile, all requirements defined in RFC 3739 [3] shall apply.

In case of discrepancies between the present document and RFC 3739 [3], the present document is the normative one.

This profile focuses on certificate content that are relevant to fulfil annex I of the electronic signature directive [i.3]. This profile is complementary to the ETSI certificate profile for natural persons TS 119 412-2 [i.2], where TS 119 412-2 [i.2] provides the basic requirements for technical interoperability. If a qualified certificate is issued to a Natural Person then the certificate should also conform to TS 119 412-2 [i.2].

In case of discrepancies between the present document and TS 119 412-2 [i.2], the present document takes precedence.

NOTE: In order to facilitate the widest possible degree of interoperability and cross border use of qualified certificates, support of TS 119 412-2 [i.2] is strongly suggested unless there is an explicit reason for not doing so, e.g. in cases where support of TS 119 412-2 [i.2] would break existing legacy applications. Even in those cases it is considered good practice to be compliant with as many requirements of TS 119 412-2 [i.2] as possible.

5.1 Issuer field

The name of the issuer contained in the issuer field (as defined in clause 3.1.1 in RFC 3739 [3]) shall contain a country name stored in the countryName attribute. The specified country shall be the country in which the issuer of the certificate is established.

5.2 Qualified Certificate Statements

This profile defines a number of individual statements for use with the extension for Qualified Certificates Statements "qCStatements extension", defined in RFC 3739 [3].

This extension is not processed as part of RFC 5280 [2] path validation and there are no security implications with accepting a certificate in a system that cannot parse this extension. In order to ensure highest degree of interoperability, the Qualified Certificate Statements extension shall not be marked as critical.

The following statements are defined in this profile:

- statement claiming that the certificates is issued as a Qualified Certificate;
- statement regarding limits on the value of transactions for which the certificate can be used;
- statement indicating the duration of the retention period during which registration information is archived;
- statement claiming that the private key associated with the public key in the certificate resides within a Secure Signature Creation Device;
- statement providing the location of Policy Disclosure Statements, according to annex B of EN 319 411-2 [6].

5.2.1 Statement claiming that the certificate is a Qualified Certificate

The statement defined in this clause contains:

• An Identifier of the statement (represented by an OID) made by the CA, stating that this certificate is issued as a Qualified Certificate according to Annex I and II of the EU Directive 1999/93/EC [i.3], as implemented in the law of the country where the CA is established.

Qualified Certificates compliant with the present document shall declare that the certificate is issued as a Qualified Certificate by including a Qualified Certificate Statements extension with an esi4-qcStatement-1 statement according to the following definition:

```
esi4-qcStatement-1 QC-STATEMENT ::= { IDENTIFIED BY id-etsi-qcs-QcCompliance } 
-- By inclusion of this statement the issuer asserts that this 
-- certificate is issued as a Qualified Certificate according 
-- Annex I and II of the Directive 1999/93/EC of the European Parliament 
-- and of the Council of 13 December 1999 on a Community framework 
-- for electronic signatures, as implemented in the law of the country 
-- specified in the issuer field of this certificate.

Id-etsi-qcs-QcCompliance OBJECT IDENTIFIER ::= { id-etsi-qcs 1 }
```

5.2.2 Statement regarding limits on the value of transactions

The limits on the value of transactions, for which the certificate can be used, if applicable, may be indicated using the statement defined in this clause. The codes are defined in ISO 4217 [5].

This optional statement contains:

- an identifier of this statement (represented by an OID);
- a monetary value expressing the limit on the value of transactions.

```
Esi4-qcStatement-2 QC-STATEMENT ::= { SYNTAX QcEuLimitValue IDENTIFIED
  BY id-etsi-qcs-QcLimitValue }
   -- By inclusion of this statement the issuer imposes a
   -- limitation on the value of transaction for which this certificate
   -- can be used to the specified amount (MonetaryValue), according to
   -- the Directive 1999/93/EC of the European Parliament and of the
   -- Council of 13 December 1999 on a Community framework for
      electronic signatures, as implemented in the law of the country
   -- specified in the issuer field of this certificate.
  QcEuLimitValue ::= MonetaryValue
  MonetaryValue::= SEQUENCE {
                      Iso4217CurrencyCode,
      currency
                      INTEGER,
      amount
      exponent
                      INTEGER }
      -- value = amount * 10^exponent
   Iso4217CurrencyCode ::= CHOICE {
       alphabetic PrintableString (SIZE (3)), -- Recommended
                   INTEGER (1..999) }
        -- Alphabetic or numeric currency code as defined in ISO 4217
        -- It is recommended that the Alphabetic form is used
                             OBJECT IDENTIFIER ::= { id-etsi-qcs 2 }
id-etsi-qcs-QcLimitValue
```

5.2.3 Statement indicating the duration of the retention period of material information

Reliance on Qualified Certificates may depend on the existence of external information retained by the CA. A significant aspect is that the Directive 1999/93/EC [i.3] allows name forms in certificates, such as pseudonyms, which may require assistance from the CA or a relevant name registration authority, in order to identify the associated physical person in case of a dispute.

This optional statement contains:

- an identifier of this statement (represented by an OID);
- a retention period for material information relevant to the use of and reliance on the certificate, expressed as a number of years after the expiry date of the certificate.

```
Esi4-qcStatement-3 QC-STATEMENT ::= { SYNTAX QcEuRetentionPeriod IDENTIFIED
BY id-etsi-qcs-QcRetentionPeriod }
-- By inclusion of this statement the issuer asserts,
-- that for the certificate where this statement appears, that
-- material information relevant to use of and reliance on the certificate
-- will be archived and can be made available upon
-- request beyond the end of the validity period of the certificate
-- for the number of years as indicated in this statement.

QcEuRetentionPeriod ::= INTEGER
id-etsi-qcs-QcRetentionPeriod OBJECT IDENTIFIER ::= { id-etsi-qcs 3 }
```

5.2.4 Statement claiming that the private key related to the certified public key resides in a Secure Signature Creation Device (SSCD)

Cas claiming to issue certificates where the private key related to the certified public key resides in a Secure Signature Creation Device (SSCD) shall use this statement. This statement contains:

• An Identifier of the statement (represented by an OID), made by the CA, stating that the private key associated with the public key in the certificate is stored in a Secure Signature Creation Device according to Annex III of the Directive 1999/93/EC [i.3], as implemented in the law of the country where the CA is established.

```
Esi4-qcStatement-4 QC-STATEMENT ::= { IDENTIFIED BY id-etsi-qcs-QcSSCD } -- By inclusion of this statement the issuer asserts, -- that for the certificate where this statement appears, that -- the private key associated with the public key in the certificate -- is protected according to Annex III of the Directive 1999/93/EC of -- the European Parliament and of the Council of 13 December 1999 on a -- Community framework for electronic signatures.

Id-etsi-qcs-QcSSCD OBJECT IDENTIFIER ::= { id-etsi-qcs 4 }
```

5.2.5 Statement regarding location of Policy Disclosure Statements (PDS)

This statement holds URLs to Policy Disclosure Statements (PDS) meeting requirements specified in clause 7.3.4 of EN 319 411-2 [6] structured according to annex B of EN 319 411-2 [6].

Qualified Certificates compliant with the present document issued **until** June 30, 2015 should contain this statement. Qualified Certificates compliant with the present document issued **after** June 30, 2015 shall contain this statement. When present, this statement shall provide at least one URL to a PDS in English. Other PDS documents in other languages may be referenced using this statement provided that they provide information that corresponds to the information given in the referenced English PDS. This statement shall not reference more than one PDS per language.

The signature of the certificate does not cover the content of the PDS and hence does not protect the integrity of the PDS which may change over time. End users trust in the accuracy of a PDS is therefore based on the mechanisms used to protect the authenticity of the PDS. As a minimum, a URL to a PDS provided in this statement shall use the "https" scheme [7].

This statement contains:

- an identifier of this statement (represented by an OID);
- a sequence of URLs, each pointing to the location of a PDS in a specified language.

5.3 Certificate policy requirements

Qualified Certificates compliant with the present document should include, in the certificate policies extension, one of the certificate policy identifiers defined in clause 5.2 of EN 319 411-2 [6]. Policy identifiers included in the certificate policies extension shall be consistent with the present Qualified Certificate Statements according to clause 5.2 of this profile.

Annex A (informative): Relationship with the Directive

Annex A describes how requirements from the Directive are addressed by the present document and referenced standards.

A.1 Annex I of the Directive

Table A.1: Annex I of the Directive 1999/93/EC [i.3]

	Requirement from Annex I in the Directive 1999/93/EC [i.3]	Implementation according to this profile and underlying standards
(a)	an indication that the certificate is issued as a Qualified Certificate;	Inclusion of an explicit statement defining this property as defined in clause 5.2.1 and, when applicable, inclusion of a certificate policy identifier including definition of this property as defined in clause 5.3.
(b)	the identification of the certification-service-provider and the State in which it is established;	By information stored in the issuer field as defined in clause 3.1.1 of RFC 3739 [3]. The certificate clearly indicates the country in which the issuer is established as mandated in clause 5.1.
(c)	the name of the signatory or a pseudonym, which shall be identified as such;	As defined in clause 3.1.2 of RFC 3739 [3].
(d)	provision for a specific attribute of the signatory to be included if relevant, depending on the purpose for which the certificate is intended;	As defined in clauses 3.1.2 and 3.2.1 of RFC 3739 [3].
(e)	signature-verification data which correspond to signature-creation data under the control of the signatory;	The public key with the associated information listed in annex A.
(f)	an indication of the beginning and end of the period of validity of the certificate;	The validity period according to ITU-T Recommendation X.509 [1] and RFC 5280 [2].
(g)	the identity code of the certificate;	The serial number of the certificate according to ITU-T Recommendation X.509 [1] and RFC 5280 [2].
(h)	the advanced electronic signature of the certification- service-provider issuing it;	The digital signature of the issuer according to ITU-T Recommendation X.509 [1] and RFC 5280 [2].
<i>(i)</i>	limitations on the scope of use of the certificate, if applicable; and	Provided by information in the certificate Policies extension, the QcStatements extension statement regarding the location of Policy Discoluser Statements, the Key Usage Extension and the Extended Key Usage Extension according to ITU-T Recommendation X.509 [1] and RFC 5280 [2].
(j)	limits on the value of transactions for which the certificate can be used, if applicable.	According to clause 5.2.2.

A.2 Annex II of the Directive

Annex II contains "requirements for certification-service-providers issuing Qualified Certificates", which generally do not impact certificate format. Some specific functions of Qualified Certificates, as listed below, may however be used to support some of these requirements.

Table A.2: Annex II of the Directive 1999/93/EC [i.3]

Requirement from Annex II in the Directive 1999/93/EC [i.3]	Supporting mechanisms
Requirement b) includes requirement on a secure and immediate revocation service.	The certificate extensions CRL distribution point and authority information access according to RFC 5280 [2] may contain information used to find and identify these services.
Requirement i) includes requirement on retention of relevant information for an appropriate period of time.	Clause 5.2.3 defines a statement that can be used to communicate the retention period to relying parties.
Requirement k) states that relevant part of the terms and conditions regarding the use of the certificate "must be made available on request to third-parties relying on the certificate."	A certificate policy identified in the certificate policies extension may contain a qualifier of the type "CPSuri", according to RFC 5280 [2], pointing to the location where such information can be obtained.

Annex B (normative): ASN.1 declarations

```
ETSIQCprofile { itu-t(0) identified-organization(4) etsi(0) id-qc-profile(1862) id-mod(0) id-mod-qc-
profile-2(2) }
DEFINITIONS EXPLICIT TAGS::=
BEGIN
-- EXPORTS All -
IMPORTS
OC-STATEMENT, gcStatement-2
     FROM PKIXqualified97 {iso(1) identified-organization(3) dod(6)
     internet(1) security(5) mechanisms(5) pkix(7) id-mod(0)
     id-mod-qualified-cert-97(35)};
-- statements
  esi4-qcStatement-1 QC-STATEMENT ::= { IDENTIFIED BY id-etsi-qcs-QcCompliance }
   - By inclusion of this statement the issuer asserts that this
  -- certificate is issued as a Qualified Certificate according
  -- Annex I and II of the Directive 1999/93/EC of the European Parliament
  -- and of the Council of 13 December 1999 on a Community framework
  -- for electronic signatures, as implemented in the law of the country
  -- specified in the issuer field of this certificate.
  Esi4-qcStatement-2 QC-STATEMENT ::= { SYNTAX QcEuLimitValue IDENTIFIED
  BY id-etsi-qcs-QcLimitValue }
   -- By inclusion of this statement the issuer imposes a
   -- limitation on the value of transaction for which this certificate
      can be used to the specified amount (Monetary Value), according to
   -- the Directive 1999/93/EC of the European Parliament and of the
   -- Council of 13 December 1999 on a Community framework for
   -- electronic signatures, as implemented in the law of the country
   -- specified in the issuer field of this certificate.
   QcEuLimitValue ::= MonetaryValue
   MonetaryValue::= SEOUENCE {
                      Iso4217CurrencyCode,
      currency
                       INTEGER,
      exponent
                      INTEGER }
      -- value = amount * 10^exponent
    Iso4217CurrencyCode ::= CHOICE {
        alphabetic PrintableString (SIZE (3)), -- Recommended
                   INTEGER (1..999) }
        -- Alphabetic or numeric currency code as defined in ISO 4217
        -- It is recommended that the Alphabetic form is used
   esi4-qcStatement-3 QC-STATEMENT ::= { SYNTAX QcEuRetentionPeriod IDENTIFIED
  BY id-etsi-gcs-OcRetentionPeriod }
   -- By inclusion of this statement the issuer asserts,
   -- that for the certificate where this statement appears, that
   -- material information relevant to use of and reliance on the certificate
      will be archived and can be made available upon
      request beyond the end of the validity period of the certificate
   -- for the number of years as indicated in this statement.
  QcEuRetentionPeriod ::= INTEGER
   esi4-qcStatement-4 QC-STATEMENT ::= { IDENTIFIED BY id-etsi-qcs-QcSSCD }
   -- By inclusion of this statement the issuer asserts,
      that for the certificate where this statement appears, that
   -- the private key associated with the public key in the certificate
   -- is protected according to Annex III of the Directive 1999/93/EC of
      the European Parliament and of the Council of 13 December 1999 on a
      Community framework for electronic signatures.
   Esi4-qcStatement-5 QC-STATEMENT ::= { SYNTAX QcEuPDS IDENTIFIED
  BY id-etsi-qcs-QcPDS }
```

```
-- This statement provides locations of Policy Disclosure Statements, according to
  -- Annex B of EN 319 411-2.
  QcEuPDS ::= PdsLocations
  PdsLocations ::= SEQUENCE SIZE (1..MAX) OF PdsLocation
  PdsLocation::= SEQUENCE {
      url
               IA5String,
      language PrintableString (SIZE(2))} - ISO 639-1 language code
-- object identifiers
                         OBJECT IDENTIFIER ::= { itu-t(0) identified-organization(4) etsi(0)
id-etsi-qcs
id-qc-profile(1862) 1 }
-- supported statements
SupportedStatements QC-STATEMENT ::= {
   qcStatement-2
   esi4-qcStatement-1 | esi4-qcStatement-2 | esi4-qcStatement-3 | esi4-qcStatement-4 | esi4-qcStatement-5, ...}
END
```

History

Document history							
V1.1.1	December 2000	Publication as TS 101 862					
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V1.3.1	March 2004	Publication as TS 101 862 (Withdraw	wn)				
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