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TECHNICAL SPECIFICATION

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Data model

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Foreword

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

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

The purpose of the present document is to establish a data model which enables bodies in charge of approval schemes to represent the approval statuses of entities in scope of those approval schemes.

Specifically, the data model specified in the present document aims to be compatible with trusted lists as they are defined in ETSI TS 119 612 [1], in the sense that a trusted list can be considered as an XML serialization of a list of trusted entity.

The data model also aims to be able to support the production of the list of providers of person identity data, wallet providers, providers of wallet relying party access certificates, and public sector bodies issuing electronic attestations of attributes by the European Commission as required under Regulation (EU) 910/2014 [i.1] and CIR 2024/2980 [i.2].

International organisations and other bodies or communities looking for a way to represent approval statuses of entities in scope of the approval scheme they manage are encouraged to make use of the data model specified in the present document as they may benefit from applications implementing processing logic of list of trusted entities.

1 Scope

The present document defines a data model for lists of trusted entities, as well as bindings of such lists in various syntaxes allowing relying parties to establish and process lists of trusted entities.

NOTE: The data model for a list of trusted entities aims to be an abstract generalization of the existing specifications of trusted lists provided in ETSI TS 119 612 [1].

The present document applies to any community aiming to establish a way to represent approval statuses of trusted entities as they are defined in the present document.

The present document specifically applies to European Union lists of providers of person identity data, wallet providers, providers of wallet relying party access certificates, and public sector bodies issuing electronic attestations of attributes, through the specifications of specific profiles defined in Annexes.

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 in the ETSI docbox.

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] ETSI TS 119 612 (V2.4.1): "Electronic Signatures and Trust Infrastructures (ESI); Trusted Lists".

[2] ISO 3166-1:2020: "Codes for the representation of names of countries and their subdivisions — Part 1: Country codes".

[3] ETSI TS 119 182-1 (V1.2.1): "Electronic Signatures and Trust Infrastructures (ESI); JAdES digital signatures; Part 1: Building blocks and JAdES baseline signatures".

[4] ETSI EN 319 132-1 (V1.3.1): "Electronic Signatures and Trust Infrastructures (ESI); XAdES digital signatures; Part 1: Building blocks and XAdES baseline signatures".

[5] ISO/IEC 10646:2020: "Information technology — Universal coded character set (UCS)".

[6] ISO/IEC 6429:1992: "Information technology — Control functions for coded character sets".

[7] ISO/IEC 2022:1994: "Information technology — Character code structure and extension techniques".

[8] ISO 8601:2019 (parts 1 and 2): "Date and time — Representations for information interchange".

[9] IETF RFC 3986: "Uniform Resource Identifier (URI): Generic Syntax".

[10] IETF RFC 4514: "Lightweight Directory Access Protocol (LDAP): String Representation of Distinguished Names".

[11] IETF RFC 5646: "Tags for Identifying Languages".

[12] Recommendation ITU-T X.509: "Information technology - Open Systems Interconnection - The Directory: Public-key and attribute certificate frameworks".

[13] IETF RFC 2368: "The mailto URL scheme".

[14] IETF RFC 3966: "The tel URI for Telephone Numbers".

[15] ETSI EN 319 412-1 (V1.6.1): "Electronic Signatures and Trust Infrastructures (ESI); Certificate Profiles; Part 1: Overview and common data structures".

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 may be useful in implementing an ETSI deliverable or add to the reader's understanding, but are not required for conformance to the present document.

[i.1] 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.2] Commission Implementing Regulation (EU) 2024/2980 of 28 November 2024 laying down rules for the application of Regulation (EU) No 910/2014 of the European Parliament and of the Council as regards notifications to the Commission concerning the European.

[i.3] Commission Implementing Regulation (EU) 2025/1569 of 29 July 2025 laying down rules for the application of Regulation (EU) No 910/2014 of the European Parliament and of the Council as regards qualified electronic attestations of attributes and electronic attestations of attributes provided by or on behalf of a public sector body responsible for an authentic source.

[i.4] W3C® Technical Report #20 Revision 7: "Unicode in XML and other Markup Languages".

[i.5] The Unicode® Standard.

[i.6] ETSI TR 119 001 (V1.2.1): "Electronic Signatures and Infrastructures (ESI); The framework for standardization of signatures; Definitions and abbreviations".

3 Definition of terms, symbols and abbreviations

3.1 Terms

For the purposes of the present document, the terms given in ETSI TR 119 001 [i.6] and the following apply:

list of trusted entity scheme operator: body that is responsible for the operation and/or management of the approval scheme under which the corresponding LoTE is published

provider of person identity data: As defined in Regulation (EU) No 910/2014 [i.1].

provider of relying party access certificate: As defined in Regulation (EU) No 910/2014 [i.1].

provider of relying party registration certificate: As defined in Regulation (EU) No 910/2014 [i.1].

trusted entity: entity that is recognized as trustworthy within a given approval scheme for a specific scope or purpose

wallet provider: As defined in Regulation (EU) No 910/2014 [i.1].

3.2 Symbols

Void.

3.3 Abbreviations

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

CC	Country Code
EU	European Union
HTTP	HyperText Transfer Protocol
LoTE	List of Trusted Entities
LoTESO	List of Trusted Entities Scheme Operator
MS	Member State
PID	Person Identity Data
Pub-EAA	Electronic Attestation of Attribute issued by a public sector body
TE	Trusted Entity
URI	Uniform Resource Identifier
WRPAC	Wallet Relying Party Access Certificate
WRPRC	Wallet Relying Party Registration Certificate
XML	eXtensible Markup Language

4 General concepts

4.1 List of Trusted Entities (LoTE)

List of Trusted Entities are intended to convey trust in a set of entities that are providing services within a given approval scheme. They take the form of a list of entities that have been granted a particular status under the given approval scheme. They represent the outcome of a process of approval, whereby the listed entities are assessed as being trustworthy for the services they provide and granted a particular status corresponding to this level of trustworthiness.

How those entities are assessed, and which process is undertaken to grant the entities this particular status enabling them to be listed in a list of trusted entities is outside of the scope of the present document but is integral part of the approval scheme that is described in the list of trusted entities.

4.2 Approval scheme

An approval scheme is any organized process of supervision, monitoring, approval or such practices that are intended to apply oversight with the objective of ensuring adherence to specific criteria in order to maintain confidence in the services under the scope of the scheme.

4.3 Trusted entities

A trusted entity is an entity that is recognized as trustworthy within a given approval scheme for a specific scope or purpose.

Trusted entities can be legal or natural entities, or objects.

4.4 Trusted entity services

Entities that are listed in a list of trusted entities are entities that are recognized as being trustworthy within the LoTE scheme for a specific scope.

The scope for which this recognition is granted is materialized in the LoTE through "trusted entity service" entries, which are associated to a specific type identifier when applicable, this type identifier then giving the precise scope of the recognition.

Trusted entity services can be electronic trust services or other commercial or non-commercial services, but are not limited to it and are a representation of the scope for which the recognition is granted to the listed trusted entities.

4.5 List of Trusted Entities Scheme Operator

The scheme operator of a List of Trusted Entities (LoTESO) is the body that is responsible for the operation and/or management of the approval scheme under which the corresponding LoTE is published.

In particular, the LoTESO is the body responsible for establishing, maintaining and publishing the LoTE.

LoTESO can be any kind of bodies, such as governmental bodies, industry or private bodies, etc.

4.6 Syntax bindings

A Syntax binding is an instantiation of the LoTE data model into a given syntax such as XML, JSON, CBOR, etc.

The present document provides such XML and JSON bindings in Annex A.

There may be several different bindings in the same syntax.

EXAMPLE: Different bindings can be defined, for instance, for an implicit scheme information compared to an explicit scheme information.

4.7 LoTE profiles

An LoTE profile is set of scheme-defined constrains on the elements of a LoTE.

Such constrains can take the form of additional requirements regarding the values of the elements of a LoTE, or the absence or presence of those elements (e.g. making the presence of an element mandatory or forbidden when it is optional under the present general data model).

EXAMPLE: The presence of the `ServiceStatus` component is optional, however a specific LoTE profile can require that this component is present in all case.

NOTE: Additional requirement means, in particular, that when the presence of some components is optional under the requirements laid down in clause 6, specific profiles can condition, forbid, or require their presence. LoTE profile cannot however make the presence of a mandatory component optional or conditioned.

5 Overall structure of lists of trusted entities

The logical model of a list of trusted entities is shown in Figure 1.

It has the following logical component parts. There shall be only one occurrence of the first two and last components (i.e. 1., 2. and 6.).

The other components may be replicated as illustrated in Figure 1:

1) A list of trusted entities tag (**Tag)**: This tag facilitates the identification of the list of trusted entities during electronic searches. The contents of the tag are specified in clause 6.2.

2) Information on the list of trusted entities and its issuing scheme (**Scheme information**): The list commences with key information about the list itself and the nature of the scheme which has determined the information found in, and through, the list. This LoTE and scheme information is specified in clause 6.3 and it includes:

   - A list of trusted entities format version identifier.
   - A list of trusted entities sequence (or release) number.
   - A list of trusted entities type information.
   - A list of trusted entities scheme operator information (e.g. name, address, contact information of the body in charge of establishing, publishing securely and maintaining the list of trusted entities).

- Information about the underlying approval scheme(s) to which the list of trusted entities is associated, including but not limited to:
  - the country in which it applies;
  - information on or reference to the location where information on the approval scheme(s) can be found (scheme model, rules, criteria, applicable community, type, etc.);
  - period of retention of (historical) information.
- List of trusted entities policy and/or legal notice, liabilities, responsibilities.
- List of trusted entities issue date and time and next planned update.

3) Unambiguous identification information about every trusted entity recognized in the scheme (**TE information**): It is a sequence of fields holding unambiguous identification information about every listed TE under the scheme. The contents of the TE information fields are specified in clause 6.5 and include:
   - The TE organization name as used in formal legal registrations.
   - The TE address and contact information.
   - Additional information on the TE either included directly or by reference to a location from where such information can be downloaded.
4) For each of the listed TEs, the details of their specific trusted entity services (**Service information**) whose current status is recorded within the LoTE, either implicitly or explicitly through the presence of a service status identifier, are provided as a sequence of fields holding unambiguous identification of a listed trusted entity service provided by the TE. The contents of the service information field are specified in clause 6.6 and it includes the following for each trusted entity service from a listed TE:
   - An identifier of the type of service, when applicable.
   - (Trade) name of this service.
   - An unambiguous unique identifier of the service.
   - An identifier of the current status of the service, when applicable.
   - The current status starting date and time.
   - Additional information on the service (directly included or included by reference to a location from which information can be downloaded): service definition information provided by the scheme operator, access information with regards to the service, service definition information provided by the TE and service information extensions.
5) (**Service approval history**) When applicable, for each listed trusted entity service, information on the status history is available in the service approval history information or a sequence of such information. The contents of the history information fields are specified in clause 6.7.
6) **(Digital signature**) The LoTE is a digitally signed list for authentication purposes. The contents of the digital signature field are specified in clause 6.8.

The number of TEs, of services per TE, and of history sections per service is unbounded.

The structure of the LoTE is further described in the following clauses by each component part and its fields.

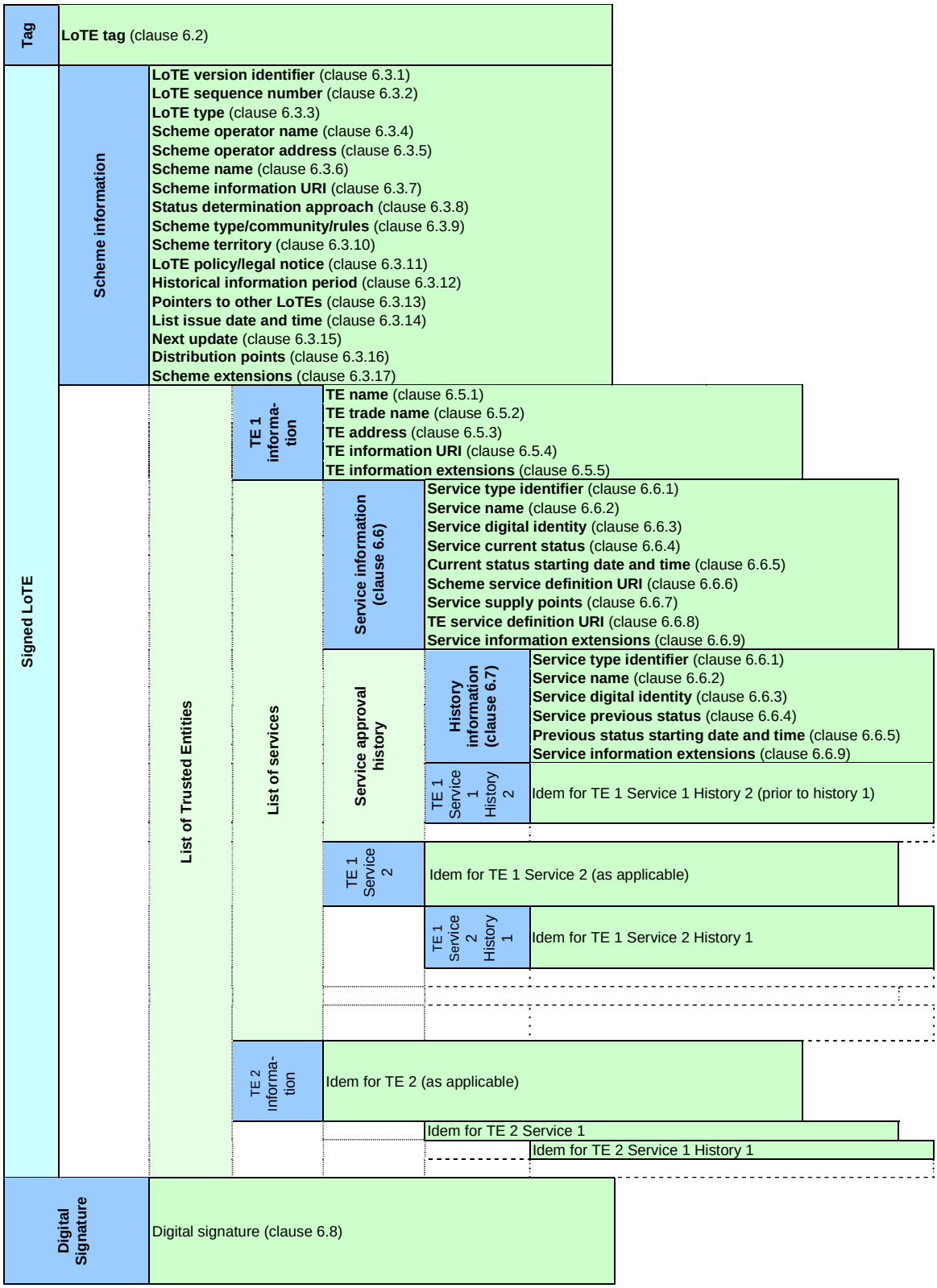

Figure 1: Logical model of a list of trusted entities

6 List of trusted entities components

6.1 General principles for lists of trusted entities

6.1.1 Formats of list of trusted entities

The present document provides bindings in XML and JSON for list of trusted entities in Annex A, which may be used for issuing list of trusted entities.

Additional bindings may be provided in subsequent versions of the present document.

6.1.2 Use of Uniform Resource Identifiers

In the definitions of LoTE fields given in the present document, many use uniform resource identifiers (URIs) to indicate the meaning of the field concerned.

Within these definitions a "common name" may be used to broadly and simply describe the specific values or meanings of the field. These common names are linked to their declaration in Annex H, which formally states all specific URIs used in the present document, with their meanings.

Some fields allow to use different URIs, which have the same purpose, to be registered and described by the scheme operator or another entity and recognized by the intended user community.

Such URIs may be registered with ETSI. Information on URI registration can be found in Annex H.

Where fields are defined as being of or using the type URI, implementers shall use general syntax as specified by IETF RFC 3986 [9].

6.1.3 Date-time indication

All fields carrying date-time values shall comply with the following rules:

1) the date-time values shall be a character string formatted according to ISO 8601 [8]; and

2) the date-time value shall be expressed as Coordinated Universal Time (UTC): its value shall contain year with four digits, month, day, hour, minute, second (without decimal fraction) and the UTC designator "Z". The time scale shall be based on the second.

6.1.4 Language support

Lists of trusted entities shall be issued supporting at least the UK English language, using the 'en' language code as specified in IETF RFC 5646 [11] and Annex G.

Lists of trusted entities may also be issued supporting multiple (national) languages.

For all the fields where support of multiple language is applicable, the field format specifications refer to the use of multilingual character string or pointer to which the following general rules shall apply:

1) A **multilingual character string** shall be a character string as defined in ISO/IEC 10646 [5] encoded in UTF-8. Each **multilingual character string** shall consist of two parts: a tag, conformant to IETF RFC 5646 [11] and in lower case, that identifies the language in which the string is expressed, and the text in that language. The same content may be represented in multiple languages by a sequence of multilingual character strings.

2) A **multilingual pointer** shall be a URI that identifies a resource expressed in a particular language. Each **multilingual pointer** shall consist of two parts: a tag, conformant to IETF RFC 5646 [11], that identifies the language in which the content pointed-to by the URI is expressed, and the URI expressed as a character string with the syntax specified by IETF RFC 3986 [9], identifying a resource expressed in the given language. The same content may be represented in multiple languages by a sequence of multilingual pointers.

Whenever the native terms cannot be represented using the Latin alphabet, as defined in ISO/IEC 10646 [5], one issue of the term in the native language plus one issue with a transliteration to the Latin alphabet shall be used.

Implementers should also comply with the UNICODE Standard [i.5].

Further detailed requirements regarding multilingual implementation are specified in normative Annex G.

6.1.5 Value of Country Code fields

All fields carrying Country Codes values, denoted by "CC", shall be in capital letters and in accordance with either:

a) ISO 3166-1 [2] Alpha 2 codes with the following exceptions:

   1) the Country Code for United Kingdom shall be "UK";

   2) the Country Code for Greece shall be "EL";

   3) when the scope of the field is the European Union and/or the European Commission the code "EU" shall be used; or

b) commonly used extensions with regional scope (e.g. AP for Asia Pacific, ASIA); or

c) another identifier recognized for identifying multi-state grouping and that does not conflict with a), or b).

6.2 List of trusted entities tag

Description:

The LoTE is tagged to facilitate its identification during electronic searches.

Format:

The `LoTETag` component shall be a character string which indicates that the data structure is a LoTE. This shall be the character representation of the LoTE Tag URI.

Semantics:

This value of this string shall be a unique value enabling a web-searching tool to establish during a WWW-wide search for LoTEs that a resource it has located is indeed a LoTE. Only the characters required to fully represent the URI shall be present.

6.3 List and scheme information

6.3.0 General

Description:

This `ListAndSchemeInformation` component provides information on the list of trusted entities and its issuing scheme.

Information about the scheme within which the LoTE is issued may be provided either implicitly or explicitly.

NOTE: Scheme information can be implicitly known when, for instance, it is provided through another means, or the context of the transactions itself within which the LoTE is consumed assumes a specific scheme known by all parties, the information on which can be retrieved by all parties out of band.

In case the scheme information is implicit, the LoTE need not contain this component.

In case the scheme information is explicit the LoTE shall contain this component.

In case the LoTE does not contain this component, information about the list itself shall be provided within the list directly through the presence of the `LoTEVersionIdentifier`, the `LoTESequenceNumber`, the `SchemeOperatorName`, the `ListIssueDateTime`, and the `NextUpdate` elements.

In case the LoTE does not contain this component, information about the history retention of the listed trusted entities and services may be provided in the list directly through the presence of the `HistoricalInformationPeriod` element.

Format:

The `ListAndSchemeInformation` component shall contain sub-components providing information about the LoTE:

- The `LoTEVersionIdentifier` element. (see clause 6.3.1).
- The `LoTESequenceNumber` element (see clause 6.3.2).
- The `ListIssueDateTime` element (see clause 6.3.14).
- The `NextUpdate` element (see clause 6.3.15).

The `ListAndSchemeInformation` component may optionally contain the below sub-components providing additional information about the LoTE:

- The `LoTEType` element (see clause 6.3.3).
- The `DistributionPoints` element (see clause 6.3.16).

The `ListAndSchemeInformation` component shall contain the below sub-components providing information about the LoTE scheme:

- The `SchemeOperatorName` element (see clause 6.3.4).

The `ListAndSchemeInformation` component may optionally contain the below sub-components providing additional information about the LoTE scheme:

- The `SchemeOperatorAddress` element (see clause 6.3.5).
- The `SchemeName` element (see clause 6.3.6).
- The `SchemeInformationURI` element (see clause 6.3.7).
- The `StatusDeterminationApproach` element (see clause 6.3.8).
- The `SchemeTypeCommunityRules` element (see clause 6.3.9).
- The `SchemeTerritory` element (see clause 6.3.10).
- The `PolicyOrLegalNotice` element (see clause 6.3.11).
- The `HistoricalInformationPeriod` element (see clause 6.3.12).
- The `PointerToOtherLoTE` component (see clause 6.3.13).
- The `SchemeExtensions` element (see clause 6.3.17).

Semantics:

In case the scheme information is implicit, this component shall contain at least the `LoTEVersionIdentifier`, the `LoTESequenceNumber`, the `SchemeOperatorName`, the `ListIssueDateTime`, and the `NextUpdate` elements.

In case the scheme information is explicit this component shall contain, in addition, `LoTEType`, the `SchemeInformationURI`, the `StatusDeterminationApproach`, the `SchemeTypeCommunityRules`, the `SchemeTerritory`, and the `PolicyOrLegalNotice` elements.

Table 1 summarizes the above requirements, where "M" means that an element shall be present, "O" means that an element may be present, and "/" means that an element shall not be present.

Table 1: Implicit and explicit scheme information

Element	Presence	
	Implicit scheme information	Explicit Scheme information
`LoTEVersionIdentifier`	M	M
`LoTESequenceNumber`	M	M
`LoTEType`	O	M
`SchemeOperatorName`	M	M
`SchemeOperatorAddress`	O	M
`SchemeName`	/	M
`SchemeInformationURI`	/	M
`StatusDeterminationApproach`	/	M
`SchemeTypeCommunityRules`	/	M
`SchemeTerritory`	O	M
`PolicyOrLegalNotice`	/	M
`HistoricalInformationPeriod`	O	O
`PointerToOtherLoTE`	O	O
`ListIssueDateTime`	M	M
`NextUpdate`	M	M
`DistributionPoints`	O	O
`SchemeExtensions`	O	O

6.3.1 LoTE version identifier

Description:

The `LoTEVersionIdentifier` component specifies the version of the LoTE format for a specific syntax binding.

Format:

The `LoTEVersionIdentifier` component shall contain an integer.

Semantics:

The value of this integer shall be incremented only when the rules for parsing the LoTE in a specific syntax change, e.g. through addition/removal of a field or a change to the values or meaning of an existing field.

Revisions to the specification of a specific syntax binding which do not change the parsing rules of the LoTE may be made without revision to this field.

NOTE: The present document does not impose a specific value for the content of this component. It is up to each syntax binding and profile specifications to handle the changes to this component.

6.3.2 LoTE sequence number

Description:

The `LoTESequenceNumber` component specifies the sequence number of the LoTE.

Format:

The `LoTESequenceNumber` component shall contain an integer.

Semantics:

At the first release of the LoTE, the value of the sequence number shall be 1.

The value shall be incremented at each subsequent release of the LoTE and shall not, under any circumstance, be re-cycled to "1" or to any value lower than the one of the LoTE currently in force.

6.3.3 LoTE type

Description:

The `LoTEType` component specifies the type of the list of trusted entities. It permits a parser to determine the form of any following field to expect according to a specific syntax binding and profile.

Format:

The `LoTEType` component shall contain an indicator expressed as a URI.

Semantics:

Each LoTE profile owner shall ensure that the LoTE type URI is unique for the profile it manages.

A list of registered LoTE type is provided in Annex H.

6.3.4 Scheme operator name

Description:

The `SchemeOperatorName` component specifies the name of the entity in charge of establishing, publishing, signing and maintaining the list of trusted entities.

Format:

The `SchemeOperatorName` component shall contain a sequence of multilingual character strings (see clause 6.1.4).

Semantics:

The name of the scheme operator shall be the formal name under which the associated legal entity or mandated entity (e.g. for governmental administrative agencies) associated with the legal entity in charge of establishing, publishing and maintaining the list of trusted entities operates.

It shall be the name used in formal legal registration or authorization and to which any formal communication should be addressed.

6.3.5 Scheme operator address

6.3.5.0 General

Description:

The `SchemeOperatorAddress` component specifies the address of the legal entity or mandated organization identified in the 'Scheme operator name' component (clause 6.3.4) for both postal and electronic communications.

Format:

This component shall contain:

1) the `PostalAddresses` element specified in clause 6.3.5.1; and

2) the `ElectronicAddress` element specified in clause 6.3.5.2.

6.3.5.1 Scheme operator postal address

Description:

The `PostalAddresses` component specifies the postal address of the legal entity identified in clause 6.3.4, with the provision for the inclusion of the address in multiple languages.

Format:

This component shall contain sequence(s) of multilingual `PostalAddress` components (see clause 6.1.4).

The `PostalAddress` component shall contain the following elements:

- The `StreetAddress` element, which shall be a string.
- The `Country` element, which shall be a two-character code in accordance with clause 6.1.5 (a).

The PostalAddress component may optionally contain the following elements:

- The `Locality` element, which shall be a string.
- The `StateOrProvince` element, which shall be a string.
- The `PostalCode` element, which shall be a string.

Semantics:

This shall be a postal address at which the scheme operator provides a help line service which is operated through conventional (physical) mail and which is processed as would be expected by normal business services.

Users (subscribers, relying parties) should use this address as the contact point for enquiries, complaints, etc. to the scheme operator.

6.3.5.2 Scheme operator electronic address

Description:

The `ElectronicAddress` component specifies the email address, the web-site URI and optional telephone number of the legal entity identified in clause 6.3.4 for electronic communications.

Format:

The `ElectronicAddress` component shall contain a sequence of multilingual character strings (see clause 6.1.4).

Semantics:

This component shall be used to provide:

- mandatorily, an e-mail address as a URI, in the form specified by IETF RFC 3986 [9], with the URI scheme defined in IETF RFC 2368 [13];
- mandatorily, a web-site as a URI, in the form specified by IETF RFC 3986 [9];
- optionally, a telephone number as a URI, in the form specified by IETF RFC 3986 [9], with the "tel" URI scheme defined in IETF RFC 3966 [14].

The e-mail address, and the telephone number when present, shall be an address, and respectively a phone number when present, at which the scheme operator provides a help line service which addresses LoTE-related matters and which are processed as would be expected by normal business services.

As regards a web-site URI, this shall lead to a capability whereby the user may communicate with a help line service which addresses LoTE-related matters and which is processed as would be expected by normal business services.

6.3.6 Scheme name

Description:

The `SchemeName` component specifies the name under which the scheme operates.

Format:

This component shall contain a sequence of multilingual character strings (see clause 6.1.4), defined as follows:

- The English version shall be a character string structured as follows:
  - CC:EN_name_value;

  where:
  - 'CC' is the code used in the 'Scheme territory' element (clause 6.3.10);
  - ':' is used as the separator;
  - 'EN_name_value' is the name of the scheme.
- Any national language version shall be a character string structured as follows:
  - CC:name_value;

  where:
  - 'CC' is the code used in the 'Scheme territory' element (clause 6.3.10);
  - ':' is used as the separator;
  - 'name_value' is the national language official translation of the above EN_name_value.

Semantics:

The name of the scheme shall be the name which is used in formal references to the scheme in question, shall be unique and shall not be used by any other scheme operated by the same entity.

6.3.7 Scheme information URI

Description:

The `SchemeInformationURI` component specifies the URI(s) where users (relying parties) can obtain scheme-specific information.

Format:

This component shall be a sequence of multilingual pointers (see clause 6.1.4).

Semantics:

This component may contain be zero or more URIs leading to archived versions of the list.

The referenced multilingual pointer URI(s), not leading to archived versions of the list, shall provide a path to information describing appropriate information about the scheme, including:

- scope and context of the list of trusted entities;
- general description and detailed information about underlying (approval) scheme;
- information about the process and procedures followed:
  - by the LoTESO, or the body from which it depends or by which it is mandated, being in charge to approve the trusted entities for being listed in the list of trusted entities; and
  - by the trusted entities for being approved for being listed in the list of trusted entities;

- information about the criteria against which the trusted entities are approved;
- information about the criteria and rules used to select assessors and defining how trusted entities are assessed by them;
- where separate bodies provide separate aspects of supervision, accreditation and scheme operation, the separate responsibilities and any liabilities of each body; and
- other contact and general information that may apply to the scheme operation.

6.3.8 Status determination approach

Description:

The `StatusDeterminationApproach` component specifies the identifier of the status determination approach.

Format:

The `StatusDeterminationApproach` component shall contain an indicator expressed as a URI.

6.3.9 Scheme type/community/rules

Description:

The `SchemeTypeCommunityRules` component specifies the URI(s) where users (relying parties) can obtain scheme type/community/rules information against which the trusted entities and the trusted entity services included in the list are approved and assessed, and from which the type of scheme or community may be determined.

Format:

The `SchemeTypeCommunityRules` component shall contain a sequence of multilingual pointers (see clause 6.1.4).

Semantics:

The referenced URI(s) shall identify:

- the specific policy/rules against which services included in the list are approved and assessed, and from which the type of scheme or community may be determined; and
- the description about how to use and interpret the content of the list of trusted entities.

Where more than one URI is provided, each shall be a complete subset of the policy defined by its predecessor (e.g. a supra-national policy might be overarching; separate nations part of this supra-national entity may have their own implementations as part of this supra-national high-level policy).

When LoTESOs participate to a wider scheme for issuing lists of trusted entities which share common rules and which point towards a descriptive text that applies to the LoTE of each LoTESO, a URI common to all LoTESO shall be used:

- denoting participation of the list of trusted entities (identified via the "LoTE type" (see clause 6.3.3) and "Scheme name" (clause 6.3.6)) in a wider scheme of lists of trusted entities (i.e. a LoTE listing pointers to all members publishing and maintaining a list of trusted entities);
- identifying a resource from where users can obtain policy/rules against which services included in the lists are assessed;
- identifying a resource from where users can obtain description about how to use and interpret the content of the lists of trusted entities. These usage rules shall be common to all lists of trusted entities being part of the wider scheme of schemes whatever the type of listed services.

6.3.10 Scheme territory

Description:

The `SchemeTerritory` component specifies the country or territory in which the scheme is established and applies.

Format:

The `SchemeTerritory` component shall contain a character string in accordance with clause 6.1.5.

6.3.11 LoTE policy/legal notice

Description:

The `PolicyOrLegalNotice` component specifies the scheme's policy or provides a notice concerning the legal status of the scheme or legal requirements met by the scheme for the jurisdiction in which the scheme is established and/or any constraints and conditions under which the LoTE is maintained and published.

Format:

The `PolicyOrLegalNotice` component shall contain either:

- a sequence of `LoTEPolicy` elements which shall be multilingual pointers (see clause 6.1.4) for specific use as a pointer to the policy or notice; or
- a sequence of `LoTELegalNotice` elements which shall be multilingual character strings (see clause 6.1.4) providing the actual text of any such policy or notice, in as many languages as necessary.

Semantics:

Any referenced text shall provide information describing the policy under which the Scheme Operator operates or any relevant legal notices with which users of the LoTE should be aware.

6.3.12 Historical information period

Description:

The `HistoricalInformationPeriod` component specifies the duration over which historical information in the LoTE is maintained once it has been included.

Format:

This component shall contain an integer.

Semantics:

When the value of this integer is set to '65535', this signifies that historical information provided in the list of trusted entities shall never be removed.

When this component is absent, this signifies that historical information provided in the list of trusted entities shall not be kept.

See also the requirements bearing on the presence of the `ServiceStatus` component (clause 6.6.4).

6.3.13 Pointers to other LoTEs

Description:

The `PointersToOtherLoTE` component references any relevant list of trusted entities or any relevant list of lists of trusted entities.

Format:

The `PointersToOtherLoTE` component shall contain a sequence of one or more `OtherLoTEPointer` elements, each `OtherLoTEPointer` element giving:

a) a `LoTELocation` element containing the URI of the machine processable format of another LoTE;

b) one or more `ServiceDigitalIdentity` element, all representing the issuer of the LoTE pointed to, formatted as specified in clause 6.6.3; and

c) additional information as a set of LoTE Qualifiers: LoTE Type, as defined in clause 6.3.3; Scheme operator name, as defined in clause 6.3.4; optionally the Scheme type/community/rules, as defined in clause 6.3.9; Scheme territory, as defined in clause 6.3.10; and Mime type.

Semantics:

More than one digital identity may be used to help the management of the pointed-to list signing process (e.g. in case of expiration/substitution of pointed-to list signing keys or more than a single signing key is allowed to sign this list).

One of such digital identities shall allow successful authentication of the pointed-to list before its use.

6.3.14 List issue date and time

Description:

The `ListIssueDateTime` component specifies the date and time on which the list of trusted entities was issued.

Format:

The `ListIssueDateTime` component shall contain a date-time value (see clause 6.1.3).

Semantics:

The `ListIssueDateTime` value shall be the Coordinated Universal Time (UTC) at which the LoTE was issued.

6.3.15 Next update

Description:

The `NextUpdate` component specifies the date and time by which, at the latest, an update of the LoTE will be made available by the scheme operator or be null to indicate a closed LoTE.

Format:

The `NextUpdate` component shall contain a date-time value (see clause 6.1.3).

Semantics:

The `NextUpdate` value shall be the Coordinated Universal Time (UTC) by which, at the latest, an update of the LoTE shall be issued.

The scheme operator shall issue and publish an update of the LoTE before that Next Update date and time whenever the underlying approval scheme will require so, in particular when changes occur to trusted entity or service related information (e.g. its status).

In the event of no interim status changes to any trusted entity or service covered by the scheme, the LoTE shall be re-issued by the time of expiration of the last LoTE issued. LoTE with a Next update occurring in the past shall be discarded as expired as a measure to reduce the risk of a substitution by an attacker with an old LoTE.

Applications shall consider, in the event they implement some caching mechanism, that other LoTEs could be issued and published before 'Next update' date and time.

LoTE profiles should specify the maximum allowed difference between the 'Next update' date and time and the 'List issue date and time'.

If a scheme ceases operations or halts publication of its LoTE, a final version shall be published with all services' status shown as "expired" (see Service current status) and this field set null.

6.3.16 Distribution points

Description:

When used, the `DistributionPoints` component specifies locations where the current LoTE is published and where updates to the current LoTE can be found.

Format:

The `DistributionPoints` component shall contain a non-empty sequence of URIs.

Semantics:

Dereferencing the given URI will always deliver the latest update of this LoTE.

If multiple distribution points are specified, they all shall provide identical copies of the current LoTE or its updated version.

6.3.17 Scheme extensions

Description:

The `SchemeExtensions` component provides specific scheme-related information and enhancements that do not require a change in the version identifier, which can be interpreted by all accessing parties according to the specific scheme's rules.

Format:

The `SchemeExtensions` component shall contain a sequence of Scheme extensions whose format is left open. Each extension shall have an indication of its criticality.

Semantics:

Each extension of the sequence shall be selected by the LoTESO according to the information it wishes to convey within its LoTE. The meaning and value of each extension shall be defined by its source specifications being either the LoTESOs own definition or any other extension definition produced by another entity, such as a community or federation of schemes, a standards body, etc. The criticality indication shall have the same semantics as with extensions in X.509-certificates [12]. A system using LoTEs shall reject the LoTE if it encounters a critical extension it does not recognize, while a non-critical extension may be ignored if it is not recognized.

6.4 Trusted Entities List

6.4.0 General

Presence:

If no trusted entity is or was approved in the context of the list of trusted entities scheme, this component shall not be present.

If one or more trusted entity services are or were approved under the LoTE scheme, this component shall be present.

Description:

The `TrustedEntitiesList` component provides a list of trusted entities and their services approved in accordance with the list of trusted entities scheme.

Format:

This component shall contain a sequence of `TrustedEntity` components.

Semantics:

It shall contain a sequence identifying each trusted entity providing one or more of approved services, with details on the status and status history of each of the trusted entities' services, as illustrated in Figure 1 (see clause 5).

6.4.1 Trusted entity

Description:

The `TrustedEntity` component provides information about a trusted entity and its corresponding services approved in accordance with the list of trusted entities scheme.

Format:

This component shall contain the below components:

- The `TrustedEntityInformation` element (see clause 6.5)

The `TrustedEntityServices` element, which shall be a sequence of `TrustedEntityService` elements.

Each of such Service History component, when present, is a sequence of Service History Instance components (see clause 6.7).

Semantics:

It shall provide information about a trusted entity and one or more of approved services associated to it, with details on the status and status history of each of the services, as illustrated in figure 1 (see clause 5).

6.4.2 Trusted entity services

Description:

The `TrustedEntityServices` component contains a sequence identifying each of the TE's recognized services and the approval status (and history of that status) of that service.

Format:

This component shall be a sequence of `TrustedEntityService` components.

Semantics:

When historical information is to be retained (see clause 6.3.12), at least one service shall be listed, even if the information held is entirely historical.

When the retention of historical information about listed services is required by clause 6.3.12, that historical information shall be retained even if the service's present status would not normally require it to be listed (e.g. the service is not considered as reliable anymore within the context of the LoTE scheme). Thus, a TE shall be included even when its only listed service is in such a state, so as to preserve the history.

6.4.3 Trusted entity service

Description:

The `TrustedEntityService` component provides information about a trusted entity service approved in accordance with the list of trusted entities scheme.

Format:

- This component shall contain the below components:
  - The `ServiceInformation` element (see clause 6.6.0).

- This component may optionally contain the below components:
  - The `ServiceHistory` component which shall be a sequence of `ServiceHistoryInstance` elements (see clause 6.7).

The `ServiceHistory` component shall be present only when historical information is applicable to the related service. In the case the service has no history prior to the current status (i.e. a first recorded status or history information not retained by the scheme operator) this field shall not be present.

Semantics:

It shall contain information of an approved services, with details on the status and status history of that service.

6.4.4 Service history

Description:

The `ServiceHistory` component specifies historical information on listed trusted entity services as a sequence of all previous status entries which the scheme has recorded for the given TE service.

Format:

The `ServiceHistory` component shall be a sequence of `ServiceHistoryInstance` elements (see clause 6.7).

Semantics:

For each change in TE service approval status which occurred within the historical information period as specified in clause 6.3.12, information on the previous approval status shall be provided in descending order of status change date and time (i.e. the date and time on which the subsequent approval status became effective).

6.5 Trusted entity information

6.5.0 General

Description:

The `TrustedEntityInformation` component provides information about a trusted entity.

Format:

This component shall contain the below components:

- The `TEName` element (see clause 6.5.1).
- The `TEAddress` element (see clause 6.5.3).
- The `TEInformationURI` element (see clause 6.5.4).

This component may optionally contain the below components:

- The `TETradeName` element (see clause 6.5.2).
- The `TEInformationExtensions` element (see clause 6.5.5).

Semantics:

It shall contain information about the trusted entity.

6.5.1 TE name

Description:

The `TEName` component specifies the name of the legal entity, or when applicable the natural person, responsible for the TE's services that are or were recognized by the scheme, in particular for the TE's services that are or were approved under the applicable scheme.

Format:

The `TEName` component shall be a sequence of multilingual character strings (see clause 6.1.4).

Semantics:

The name of the legal entity, or when applicable the natural person, responsible for the TE's services shall be the name which is used in formal legal registrations and official records and to which any formal communication, whether physical or electronic, should be addressed.

6.5.2 TE trade name

Description:

The `TETradeName` component specifies an official registration identifier as registered in official records, where such a registered identifier exists, that unambiguously identifies the TE.

It may additionally be used to specify an alternative name under which the TE identifies itself in the specific context of the provision of those of its services which are to be found in this LoTE under its 'TE name' (clause 6.5.1) entry.

Format:

The `TETradeName` component shall be a sequence of multilingual character strings (see clause 6.1.4).

Semantics:

It shall include an official registration identifier as registered in official records, where such a registered identifier exists, that unambiguously identifies the TE.

It may additionally include any name under which the legal entity, or when applicable the natural person, responsible for the TE operates, in the specific context of the delivery of those of its services which are to be found in this LoTE.

6.5.3 TE address

6.5.3.0 General

Description:

The `TEAddress` component specifies the address of the legal entity or mandated organization, or when applicable the natural person, identified in the 'TE name' field (clause 6.5.1) for both postal and electronic communications.

Format:

The `TEAddress` component shall contain the below sub-components:

- The `TEPostalAddress` element (see clause 6.5.3.1).
- The `TEElectronicAddress` element (see clause 6.5.3.2)

6.5.3.1 TE postal address

Description:

The `TEPostalAddress` component specifies the postal address of the TE identified in clause 6.5.1, with the provision for the inclusion of the address in multiple languages.

Format:

As specified in clause 6.3.5.1.

Semantics:

This shall be a postal address at which the TE provides a customer care or help line service, operated through conventional (physical) mail and processed as would be expected by normal business services.

6.5.3.2 TE electronic address

Description:

The `TEElectronicAddress` component specifies an email address, a web-site URI, and an optional telephone number of the TE identified in clause 6.5.1, to be used for electronic communications.

Format:

As specified in clause 6.3.5.2.

Semantics:

The e-mail address, and the telephone number when present, shall be an address, and respectively a phone number when present, at which the TE provides a customer care or help line service which is related to the listed services and which are processed as would be expected by normal business services.

As regards a web-site URI, this shall lead to a capability whereby the user may communicate with a customer care or help line service which is related to the listed services and which is processed as would be expected by normal business services.

6.5.4 TE information URI

Description:

The `TEInformationURI` component specifies the URI(s) where users (e.g. relying parties) can obtain TE-specific information.

Format:

The `TEInformationURI` component shall be a sequence of multilingual pointers (see clause 6.1.4).

Semantics:

Profiles making use of this extension should provide requirements regarding the information available at the listed URI(s).

6.5.5 TE information extensions

6.5.5.0 General

Description:

The `TEInformationExtensions` component may be used by scheme operators to provide specific TE-related information, to be interpreted according to the specific scheme's rules.

Format:

Sequence of TE extensions whose format is left open.

Semantics:

Each TE information extension may be selected by the scheme operator according to the meaning and information it wishes to convey within its LoTE.

The meaning of each extension is hence defined by its source specification, that specification being either the scheme operator's own definition or any other extension definition produced by another entity, such as a community or federation of schemes, a standards body, etc.

6.5.5.1 Other associated bodies extension

6.5.5.1.0 General

Description:

The `OtherAssociatedBodies` component specifies information about bodies different from the TE identified through the `TEName` component (see clause 6.5.1) that are associated with the identified TE in a way that is meaningful in the context of the LoTE scheme and with respect to the listed services.

Format:

The `OtherAssociatedBodies` component shall be a sequence of `AssociatedBody` elements which is defined here below.

Semantics:

Each body identified in the `AssociatedBody` elements shall be different bodies that are associated in a meaningful way with the TE and its listed services in the context of the LoTE scheme.

Specific profiles making use of this extension shall define the requirements applying to the bodies listed through this extension.

6.5.5.1.1 Associated body

Description:

The `AssociatedBody` component specifies information about a body different from the TE identified through the `TEName` component (see clause 6.5.1) that is associated with the identified TE in a way that is meaningful in the context of the LoTE scheme and with respect to the listed services.

Format:

The `AssociatedBody` component shall contain the below components:

- The `AssociatedBodyName` element (see clause 6.5.5.1.2).

This component may optionally contain the below components:

- The `AssociatedBodyTradeName` element (see clause 6.5.5.1.3).
- The `AssociatedBodyAddress` element (see clause 6.5.5.1.4).
- The `AssociatedBodyInformationURI` element (see clause 6.5.5.1.5).
- The `AssociatedBodyTypeIdentifier` element (see clause 6.5.5.1.6).
- The `AssociatedBodyInformationExtensions` element (see clause 6.5.5.1.7).

Semantics:

It shall contain information about a body different from the TE identified through the `TEName` element (see clause 6.5.1) and that is associated with the identified TE in a way that is meaningful in the context of the LoTE scheme and with respect to the listed services.

6.5.5.1.2 Associated body name

Description:

The `AssociatedBodyName` component specifies the name of the body that is associated with the identified TE in a way that is meaningful in the context of the LoTE scheme and with respect to the listed services.

Format:

The `AssociatedBodyName` component shall be a sequence of multilingual character strings (see clause 6.1.4).

Semantics:

The name of the body that is associated with the identified TE in a way that is meaningful in the context of the LoTE scheme and with respect to the listed services shall be the name which is used in formal legal registrations and official records and to which any formal communication, whether physical or electronic, should be addressed.

6.5.5.1.3 Associated Body trade name

Description:

The `AssociatedBodyTradeName` component specifies an official registration identifier as registered in official records, where such a registered identifier exists, that unambiguously identifies the body associated to the TE.

It may additionally be used to specify an alternative name under which the body identifies itself in the specific context within which it is associated to the TE.

Format:

The `AssociatedBodyTradeName` component shall be a sequence of multilingual character strings (see clause 6.1.4).

Semantics:

It shall include an official registration identifier as registered in official records, where such a registered identifier exists, that unambiguously identifies the body associated to the TE.

It may additionally include any name under which the body operates, in the specific context within which it is associated to the TE.

6.5.5.1.4 Associated body address

6.5.5.1.4.0 General

Description:

The `AssosciatedBodyAddress` component specifies the address of the body identified through the `AssocitedBodyName` component (clause 6.5.1) for both postal and electronic communications.

Format:

The `AssosciatedBodyAddress` component shall contain the below sub-components:

- The `AssosciatedBodyPostalAddress` element (see clause 6.5.5.1.4.1).
- The `AssosciatedBodyElectronicAddress` element (see clause 6.5.5.1.4.2).

6.5.5.1.4.1 Associated body postal address

Description:

The `AssosciatedBodyPostalAddress` component specifies the postal of the body identified through the `AssocitedBodyName` component (clause 6.5.1), with the provision for the inclusion of the address in multiple languages.

Format:

As specified in clause 6.3.5.1.

Semantics:

This shall be a postal address at which the body provides a customer care or help line service, operated through conventional (physical) mail and processed as would be expected by normal business services.

6.5.5.1.4.2 Associated body electronic address

Description:

The `AssosciatedBodyElectronicAddress` component specifies an email address, a web-site URI, and an optional telephone number of the body identified through the `AssocitedBodyName` component (clause 6.5.1), to be used for electronic communications.

Format:

As specified in clause 6.3.5.2.

Semantics:

The e-mail address, and the telephone number when present, shall be an address, and respectively a phone number when present, at which the body provides a customer care or help line service which is related to the listed services and which are processed as would be expected by normal business services.

As regards a web-site URI, this shall lead to a capability whereby the user may communicate with a customer care or help line service which is related to context within which the body is associated to the TE and which is processed as would be expected by normal business services.

6.5.5.1.5 Associated body information URI

Description:

The `AssociatedBodyInformation` component specifies the URI(s) where users (e.g. relying parties) can obtain information specific to that body.

Format:

The `AssociatedBodyInformation` shall be a sequence of multilingual pointers (see clause 6.1.4).

Semantics:

Profiles making use of this extension should provide requirements regarding the information available at the listed URI(s).

6.5.5.1.6 Associated body type identifier

Description:

The `AssociatedBodyTypeIdentifier` component specifies the identifier of the type of body associated with the TE.

Format:

The `AssociatedBodyTypeIdentifier` component shall be an indicator expressed as a URI.

Semantics:

LoTE profiles making use of this extension shall specify, when they require the usage of this component, the set of URI values and their semantics that can be used for the `AssociatedBodyTypeIdentifier` component.

6.5.5.1.7 Associated body information extensions

Description:

The `AssociatedBodyInformationExtensions` component may be used by scheme operators to provide specific Associated Body-related information, to be interpreted according to the specific scheme's rules.

Format:

Sequence of Associated Body extensions whose format is left open.

Semantics:

Each Associate Body information extension may be selected by the scheme operator according to the meaning and information it wishes to convey within its LoTE.

The meaning of each extension is hence defined by its source specification, that specification being either the scheme operator's own definition or any other extension definition produced by another entity, such as a community or federation of schemes, a standards body, etc.

6.6 Service information

6.6.0 General

Description:

The `ServiceInformation` component provides information about a trusted entity service.

Format:

This component shall contain the below sub-components:

- The `ServiceName` component (see clause 6.6.2).
- The `ServiceDigitalIdentity` component (see clause 6.6.3).

This component may optionally contain the below sub-components:

- The `ServiceTypeIdentifier` component (see clause 6.6.1).
- The `ServiceStatus` component (see clause 6.6.4).
- The `StatusStartingTime` component (see clause 6.6.5).
- The `SchemeServiceDefinitionURI` component (see clause 6.6.6).
- The `ServiceSupplyPoint` component (see clause 6.6.7).
- The `ServiceDefinitionURI` component (see clause 6.6.8).
- The `ServiceInformationExtensions` component (see clause 6.6.9).

Semantics:

When the `HistoricalInformationPeriod` component is present with a non-zero value, the `ServiceStatus` component shall be present.

NOTE 1: When the `HistoricalInformationPeriod` component is absent, or present with a zero value, and the `ServiceStatus` component is absent, this signifies that all listed trusted entity services have the same approval status in the list of trusted entities scheme.

NOTE 2: When the `ServiceTypeIdentifier` component is absent, this signifies that all listed trusted entity services are of the same type in the list of trusted entities scheme.

NOTE 3: When the `StatusStartingTime` component is absent, this signifies verification of the approval status of a listed entity service can only be done at current time. LoTE without the `StatusStartingTime` component are not suitable for verification of approval statuses of entity services in the past.

When the listed service relies on PKI technology, the `ServiceDigitalIdentity` component shall contain at least one `X509Certificate` element.

6.6.1 Service type identifier

Description:

The `ServiceTypeIdentifier` component specifies the identifier of the service type.

Format:

The `ServiceTypeIdentifier` component shall be an indicator expressed as a URI.

Semantics:

The quoted URI shall be a URI value registered and described by the scheme operator or another entity.

LoTE profiles should define and register the URIs that may be used in accordance with that profile.

NOTE: Any organization can request an object identifier under the etsi-identified organization node or a URI root as detailed on https://portal.etsi.org/PNNS.aspx.

6.6.2 Service name

Description:

The `ServiceName` component specifies the name under which the TE identified in 'TE name' (clause 6.5.1) provides the service whose type is identified in 'Service type identifier' (clause 6.6.1).

Format:

The `ServiceName` component shall be a sequence of multilingual character strings (see clause 6.1.4).

Semantics:

The name under which the TE provides the service.

6.6.3 Service digital identity

6.6.3.0 General

Description:

The `ServiceDigitalIdentity` component specifies one or multiple digital identifiers identifying the service with the type they are associated to (as identified in 'Service type identifier', clause 6.6.1).

NOTE: In some context, this component can be used to specify one and only one service digital identifier uniquely and unambiguously identifying the service with the type it is associated to.

In general however, multiple identifiers can be listed, the collection of which identifies the service in a meaningful way in the LoTE scheme.

Format:

The `ServiceDigitalIdentity` component may contain:

- One or more `X509Certificate` elements (see clause 6.6.3.1).

- One or more `X509SubjectName` elements (see clause 6.6.3.2).
- One or more `PublicKeyValue` elements (see clause 6.6.3.3).
- One or more `X509SKI` elements (see clause 6.6.3.4).
- One or more `OtherId` elements.

Semantics:

When using PKI public-key technology, this component shall contain at least: one `X509Certificate` element or an `X509SKI` element.

X.509 Certificates present within the `X509Certificate` element should contain the organizationName attribute in their subjectName field.

The value of that organizationName attribute should strictly match the 'TE Name' value (clause 6.4.1).

6.6.3.1 X509 certificate

Description:

The `X509Certificate` component specifies a public key certificate.

Format:

The `X509Certificate` component shall be a Base64 string.

Semantics:

The value of the string shall be a Base64 encoded X.509 certificate [12].

6.6.3.2 X509 subject name

Description:

The `X509SubjectName` component specifies a Distinguished Name [12].

Format:

The `X509SubjectName` component shall be a string.

Semantics:

The value of the `X509SubjectName` component shall be a Distinguished Name encoded as a string.

The Distinguished Name should be encoded according to the encoding rules specified in clause 2 of IETF RFC 4514 [10].

Specific LoTE profiles shall specify how the Distinguished Name shall be encoded.

6.6.3.3 Public key value

Description:

The `PublicKeyValue` component specifies the value of a public key.

Format:

The format of the `PublicKeyValue` component is left open and is syntax-specific.

Semantics:

The value of the `PublicKeyValue` component shall be the same public key as the one present within any `X509Certificate` element listed in the parent `ServiceDigitalIdentity` component, if any.

6.6.3.4 Subject key identifier

Description:

The `SubjectKeyIdentifier` component specifies an identifier of the public key.

Format:

The format of the `PublicKeyValue` component is left open and is syntax-specific.

Semantics:

The value of the `PublicKeyValue` component shall be the same public key as the one present within any `X509Certificate` element listed in the parent `ServiceDigitalIdentity` component, if any.

6.6.3.5 OtherId

Description:

The `OtherId` component specifies an identifier whose format is left open.

Format:

The format of the `OtherId` component is left open.

6.6.4 Service current status

Description:

The `ServiceStatus` component specifies the identifier of the current status of the service.

Format:

The `ServiceStatus` component shall be an identifier expressed as a URI.

Semantics:

LoTE profiles should define a set of service current status URI values and their corresponding semantics.

LoTESO may define a set of service current status URI values through the 'Scheme information URI' (see clause 6.3.7) together with their corresponding semantics.

6.6.5 Current status starting date and time

Description:

The `StatusStartingTime` component specifies the date and time on which the current approval status became effective.

Format:

The `StatusStartingTime` component shall be a Date-time value (see clause 6.1.3).

Semantics:

Coordinated Universal Time (UTC) at which the current approval status became effective.

LoTESO shall ensure the consistency of the (re)-issuance of a list of trusted entities and the actual date when a service status has been updated (e.g. granted or withdrawn), i.e. the 'List issue date and time' (clause 6.3.14), the time of signing the trusted list and the time of change. The date and time associated to the new current status of a listed service shall not be set before the date of (re)issuance of the list of trusted entities as retroactive status change can have undesired effects to previous validations of listed services and of their outputs.

6.6.6 Scheme service definition URI

Description:

The `SchemeServiceDefinitionURI` component specifies the URI(s) where relying parties can obtain service-specific information provided by the LoTE scheme operator.

Format:

The `SchemeServiceDefinitionURI` component shall be a sequence of multilingual pointers (see clause 6.1.4).

Semantics:

The referenced URI(s) shall provide a path to information describing the service as specified by the scheme.

LoTE profiles may define a set of Scheme service definition URI together with their semantics.

6.6.7 Service supply points

Description:

The `ServiceSupplyPoints` component specifies one or more URIs where relying parties can access the service, or component services or other types of services related with the service. Optionally, for each URI it specifies the type of service that can be accessed at this URI.

Format:

The `ServiceSupplyPoints` component shall be a non-empty sequence of URIs, each such URI being optionally further specified with a non-empty URI.

Semantics:

The referenced URI(s) shall specify where and how the service can be accessed.

NOTE: Both human processable and machine processable supply points can be provided.

6.6.8 TE service definition URI

Description:

The `TEServiceDefinitionURI` component specifies the URI(s) where relying parties can obtain service-specific information provided by the TE.

Format:

The `TEServiceDefinitionURI` component shall be a sequence of multilingual pointers (see clause 6.1.4).

Semantics:

The referenced URI(s) shall provide a path to information describing the service as specified by the TE.

6.6.9 Service information extensions

6.6.9.0 General

Description:

The `ServiceInformationExtensions` component specifies specific service-related information.

Format:

The `ServiceInformationExtensions` component shall be a sequence of `ServiceInformationExtension` components whose format is left open.

Semantics:

LoTE profiles may define `ServiceInformationExtension` components and their semantics.

6.6.9.1 Service unique identifier extension

Description:

The `ServiceUniqueIdentifier` component specifies a scheme-specific unique identifier of service.

Format:

The `ServiceUniqueIdentifier` component shall be a URI.

Semantics:

The value of the URI shall identify uniquely and unambiguously the associated service.

6.7 Service history instance

Description:

The `ServiceHistoryInstance` component provides historical information about a trusted entity service.

Format:

The `ServiceHistoryInstance` component shall contain the below sub-components:

- The `ServiceName` element (see clause 6.6.2).
- The `ServiceDigitalIdentity` element (see clause 6.6.3).
- The `ServiceStatus` element (see clause 6.6.4).
- The `StatusStartingTime` element (see clause 6.6.5).

This component may optionally contain the below sub-components:

- The `ServiceTypeIdentifier` element (see clause 6.6.1).
- The `ServiceInformationExtensions` element (see clause 6.6.9).

Semantics:

The `ServiceDigitalIdentity` element in a `ServiceHistoryInstance` component shall contain a copy of all digital identifier(s) that were applicable from the date and time indicated in the `StatusStartingTime` element of the history instance to the `StatusStartingTime` of the current status, or, when using PKI technology, at least the `X509SKI` element(s) representing the public key(s) that were applicable as digital identifier(s) at that time.

NOTE 1: In case multiple X.509 certificates representing the same public key were used as the digital identifier, only one `X509SKI` element in the history instance can be used to represent that public key.

NOTE 2: It is up to each specific scheme to define the rules regarding the semantics of the `ServiceDigitalIdentity` element of the `ServiceHistoryInstance` component, in relation to the scheme-specific semantics of the `ServiceDigitalIdentity` element of the `ServiceInformation` component which contains that history entry. Such rules can be the presence of all X.509 certificates applicable at a time, or the presence of a unique `X509SKI` element when the semantics of the `ServiceDigitalIdentity` element forbid the representations of multiple public keys in a given `ServiceDigitalIdentity` element.

6.8 Digital signature

6.8.0 General

Lists of trusted entities shall be signed by means of an AdES digital signature at conformance level baseline B.

The AdES digital signature may either be present within the LoTE itself, when the signature format provides for such a relationship between the signed data and the signature, or the signature itself encapsulates the LoTE.

The "Country code" and "Organization" fields in Subject Distinguished Name of the certificate supporting the AdES digital signature shall match respectively the "Scheme Territory" and one of the "Scheme operator name" values.

If the AdES digital signature is present within the LoTE itself, it shall be provided through the `Signature` component specified in clause 6.8.1.

6.8.1 Signature component

Description:

The `Signature` component shall encapsulate an AdES digital signature authenticating the LoTE.

Annex A (normative): Bindings

A.1 JSON bindings

A JSON binding for a scheme-explicit LoTE is provided in the following repository:

- https://forge.etsi.org/rep/esi/x19_60201_lists_of_trusted_entities

In the event that any part of the module and/or schemas within this electronic attachment are in conflict with the text of the present document, the present document shall prevail as the authoritative source.

A.2 XML bindings

A.2.1 Explicit scheme

An XML binding for a scheme-explicit LoTE is provided in the following repository:

- https://forge.etsi.org/rep/esi/x19_60201_lists_of_trusted_entities

In the event that any part of the module and/or schemas within this electronic attachment are in conflict with the text of the present document, the present document shall prevail as the authoritative source.

A.2.2 ETSI TS 119 612 schema

ETSI TS 119 612 [1], Annex C, provides an alternative XML binding for a scheme explicit LoTE.

The table below provides a mapping from the components specified in the present document to the fields defined in ETSI TS 119 612 [1].

Table A.1: Mapping of ETSI TS 119 612 [1] fields to the ETSI TS 119 602 (the present document) components

ETSI TS 119 602 LoTE component and clause	ETSI TS 119 612 [1] field and clause
LoTE version identifier (clause 6.3.1)	TSL version identifier (clause 5.3.1)
LoTE sequence number (clause 6.3.2)	TSL sequence number (clause 5.3.2)
LoTE type (clause 6.3.3)	TSL type (clause 5.3.3)
Scheme operator name (clause 6.3.4)	Scheme operator name (clause 5.3.4)
Scheme operator address (clause 6.3.5)	Scheme operator address (clause 5.3.5)
Scheme name (clause 6.3.6)	Scheme name (clause 5.3.6)
Scheme information URI (clause 6.3.7)	Scheme information URI (clause 5.3.7)
Status determination approach (clause 6.3.8)	Status determination approach (clause 5.3.8)
Scheme type/community/rules (clause 6.3.9)	Scheme type/community/rules (clause 5.3.9)
Scheme territory (clause 6.3.10)	Scheme territory (clause 5.3.10)
LoTE policy/legal notice (clause 6.3.11)	TSL policy/legal notice (clause 5.3.11)
Historical information period (clause 6.3.12)	Historical information period (clause 5.3.12)
Pointers to other LoTEs (clause 6.3.13)	Pointers to other TSLs (clause 5.3.13)
List issue date and time (clause 6.3.14)	List issue date and time (clause 5.3.14)
Next update (clause 6.3.15)	Next update (clause 5.3.15)
Distribution points (clause 6.3.16)	Distribution points (clause 5.3.16)
Scheme extensions (clause 6.3.17)	Scheme extensions (clause 5.3.17)
Trusted Entities List (clause 6.4)	Trust Service Provider List (clause 5.3.18)
TE name (clause 6.5.1)	TSP name (clause 5.4.1)
TE trade name (clause 6.5.2)	TSP trade name (clause 5.4.2)
TE address (clause 6.5.3)	TSP address (clause 5.4.3)
TE information URI (clause 6.5.4)	TSP information URI (clause 5.4.4)
TE information extensions (clause 6.5.5)	TSP information extensions (clause 5.4.5)
Trusted Entity Services (list of services) (clause 6.4.2)	TSP Services (list of services) (clause 5.4.6)
Service type identifier (clause 6.6.1)	Service type identifier (clause 5.5.1)
Service name (clause 6.6.2)	Service name (clause 5.5.2)
Service digital identity (clause 6.6.3)	Service digital identity (clause 5.5.3)
Service current status (clause 6.6.4)	Service current status (clause 5.5.4)
Current status starting date and time (clause 6.6.5)	Current status starting date and time (clause 5.5.5)
Scheme service definition URI (clause 6.6.6)	Scheme service definition URI (clause 5.5.6)
Service supply points (clause 6.6.7)	Service supply points (clause 5.5.7)
TE service definition URI (clause 6.6.8)	TSP service definition URI (clause 5.5.8)
Service information extensions (clause 6.6.9)	Service information extensions (clause 5.5.9)
History information (clause 6.4.4)	History information (clause 5.6)

Annex B (normative): Implementation requirements for multilingual support

B.1 General rules

When establishing their list of trusted entities, LoTESOs shall use:

- Language codes in lower case and country codes in upper case.
- Language and country codes according to Table B.1 with regards to EU MS.

When a Latin script is present (with its proper language code) a transliteration in Latin script with the related language codes specified in Table B.1 is added.

Table B.1

Short name (source language)	Short name (English)	Country Code	Language Code	Notes	Transliteration in Latin script
Belgique/België	Belgium	BE	fr, de, nl		
България (*)	Bulgaria	BG	bg		bg-Latn
Česká republika	Czech Republic	CZ	cs		
Danmark	Denmark	DK	da		
Deutschland	Germany	DE	de		
Eesti	Estonia	EE	et		
Éire/Ireland	Ireland	IE	ga, en		
Ελλάδα (*)	Greece	EL	el	Country code recommended by EU	el-Latn
España	Spain	ES	es	also Catalan (ca), Basque (eu), Galician (gl)	
France	France	FR	fr		
Hrvatska	Croatia	HR	hr		
Italia	Italy	IT	it		
Κύπρος/Kıbrıs (*)	Cyprus	CY	el, tr		el-Latn
Latvija	Latvia	LV	lv		
Lietuva	Lithuania	LT	lt		
Luxembourg	Luxembourg	LU	fr, de, lb		
Magyarország	Hungary	HU	hu		
Malta	Malta	MT	mt, en		
Nederland	Netherlands	NL	nl		
Österreich	Austria	AT	de		
Polska	Poland	PL	pl		
Portugal	Portugal	PT	pt		
România	Romania	RO	ro		
Slovenija	Slovenia	SI	sl		
Slovensko	Slovakia	SK	sk		
Suomi/Finland	Finland	FI	fi, sv		
Sverige	Sweden	SE	sv		
United Kingdom	United Kingdom	UK	en	Country code recommended by EU	
Ísland	Iceland	IS	is		
Liechtenstein	Liechtenstein	LI	de		
Norge/Noreg	Norway	NO	no, nb, nn		

NOTE: (*) Latin transliteration: България = Bulgaria; Ελλάδα = Elláda; Κύπρος = Kýpros.

B.2 Multilingual character string

The string contained within a multilingual character string shall fulfil the requirements of Annex N of ISO/IEC 10646 [5] subject to the following restrictions:

1) the content shall be a string of characters from the Universal Character Set (UCS) as defined by ISO/IEC 10646 [5];

2) the content shall be UTF-8 encoded;

3) the content shall not include any signature to identify the UCS (see Annex H of ISO/IEC 10646 [5]);

4) control functions (ISO/IEC 6429 [6]), escape sequences (ISO/IEC 2022 [7]) and control sequences or strings shall not be used; therefore control characters such as TAB, CR, LF shall not be present;

5) private-use characters (see clause 10 of ISO/IEC 10646 [5]) from the private use zone (code points E000 to F8FF) in the Basic Multilingual Plane (BMP) and from the private-use Planes 0F and 10 in Group 00, shall not be used;

6) Tag Characters (see Annex T of ISO/IEC 10646 [5]) shall not to be used: therefore the characters from the TAGS (3001) collection shall not be used (see Annex A of ISO/IEC 10646 [5] for the list of defined collections);

7) the content shall be plain text without any mark-up elements or tags from languages as SGML, HTML, XML, XHTML, RTF, TeX and others;

8) the content should follow the semantic rules defined by the Unicode Standard [i.5] (available at http://www.unicode.org/standard/standard.html) for the corresponding characters;

9) combining characters should not be used if the content can be expressed without them; if there is the need to use combining characters but it is possible not to use the ones listed in clause B.1 of ISO/IEC 10646 [5], then that latter set shall not be used.

NOTE: This helps to keep as low as possible the required implementation level (as defined by clause 14 of ISO/IEC 10646 [5]) for parsing applications.

B.3 Multilingual pointer

If the content pointed by the multilingual pointer is plain text, it shall meet the following requirements that express the conformity to Annex N of ISO/IEC 10646 [5] and add further restrictions:

1) the pointed content shall be a string of characters from the Universal Character Set (UCS) as defined by ISO/IEC 10646 [5];

2) the pointed-to content shall be UTF-8 encoded;

3) the pointed-to content may include the signature for UTF-8 (see Annex H of ISO/IEC 10646 [5]) to identify the UCS;

4) control functions (ISO/IEC 6429 [6]), escape sequences (ISO/IEC 2022 [7]) and control sequences or strings may be used;

5) private-use characters (see clause 10 of ISO/IEC 10646 [5]) from the private use zone (code points E000 to F8FF) in the Basic Multilingual Plane (BMP) and from the private-use Planes 0F and 10 in Group 00, shall **not** be used;

6) tag Characters (see Annex T of ISO/IEC 10646 [5]) shall not to be used: therefore the characters from the TAGS (3001) collection shall not be used (see Annex A of ISO/IEC 10646 [5] for the list of defined collections);

7) if the pointed-to content is expressed by means of mark-up languages as SGML, HTML, XML, XHTML then:

   a) the requirements described in W3C Technical Report #20 [i.4] should be met;

b) a language indication may be present according to the mechanisms listed in W3C Technical Report #20 [i.4].

8) the pointed-to content should follow the semantic rules defined by the Unicode Standard [i.5] (available at http://www.unicode.org/standard/standard.html) for the corresponding characters;

9) combining characters should not be used if the pointed-to content can be expressed without them; if there is the need to use combining characters but it is possible not to use the ones listed in clause B.1 of ISO/IEC 10646 [5], then that latter set shall not be used.

NOTE: This helps to keep as low as possible the required implementation level (as defined by clause 14 of ISO/IEC 10646 [5] for parsing applications).

B.4 Overall requirements

The requirements of W3C Technical Report #20 [i.4] should be met.

For interoperability purposes, all applications parsing LoTEs shall be able to store and manage all characters defined by ISO/IEC 10646 [5]. This way the digital signature applied to the LoTE can be always verified, whatever UCS characters are used within the LoTE. However the parsing application may not be able to correctly present all characters.

NOTE: Developers of LoTE parsing applications are advised that if their application does not support some of these characters, the application should give notice to the user about possible incorrect representation of the content of multilingual fields; the precise behaviour of the application while presenting unsupported characters is left to developers [i.4].

Annex C (normative): Registered Uniform Resource Identifiers

C.1 Scheme registered URIs

Any organization operating a scheme might choose to create its own URIs for its own specific purposes or request ETSI to assign a registered URI root under the ETSI Identified Organization Domain (see https://portal.etsi.org/pnns/uri-list), and then define its own URIs under this root. It might be appropriate to register certain of those URIs where they complement URIs required by or which might be used in the context of the publication of a LoTE. The following examples suggest how additional URIs could be created, including showing a second level of rules, after using the applicable Optional URI as shown in Table C.1.

Table C.1

Potential URI Meaning	Related LoTE field (if any)
http://uri.etsi.org/"registered_org"/"schemename"	Scheme type/community/rules (at the secondary level)
This could mean an assessment scheme called "schemename" being operated by "registered_org", where "registered_org" is replaced by the name of the scheme operator and "schemename" is replaced by the actual scheme name.	
http://"scheme_op_URI_root"/.../schemerules/"schemename"	
This URI would be registered under a different root, e.g. the scheme operator's, distinguished by "scheme_op_URI_root", or it could be another organization which maintains a registry of URIs. This URI could mean an assessment scheme called "schemename" being operated by "scheme_op" where "scheme_op" is replaced by the name of the scheme operator and "schemename" is replaced by the actual scheme name.	

C.2 EU specific LoTE profiles URIs

C.2.1 LoTE Type

The following URIs are registered under the radix "http://uri.etsi.org/19602/".

http://uri.etsi.org/19602/LoTEType/EUPIDProvidersList
A LoTE implementation of a list of providers of person identity data, which are notified by Member States in accordance with the applicable European legislation.
http://uri.etsi.org/19602/LoTEType/EUWalletProvidersList
A LoTE implementation of a list of wallet providers, which are notified by Member States in accordance with the applicable European legislation.
http://uri.etsi.org/19602/LoTEType/EUWRPACProvidersList
A LoTE implementation of a list of providers of wallet relying party access certificates, which are notified by Member States in accordance with the applicable European legislation.
http://uri.etsi.org/19602/LoTEType/EUWRPRCProvidersList
A LoTE implementation of a list of providers of wallet relying party registration certificates, which are notified by Member States in accordance with the applicable European legislation.
http://uri.etsi.org/19602/LoTEType/EUPubEAAProvidersList
A LoTE implementation of a list of public sector bodies issuing electronic attestation of attribute, which are notified by Member States in accordance with the applicable European legislation.
http://uri.etsi.org/19602/LoTEType/EURegistrarsAndRegistersList
A LoTE implementation of a list of registrars and registers, which are notified by Member States in accordance with the applicable European legislation.

C.2.2 Status determination approach

http://uri.etsi.org/19602/PIDProvidersList/StatusDetn/EU
Services listed have their status determined by the Member State notifying the provider of person identity data and related services under the applicable European legislation, as further described in the 'Scheme information URI' pointed-to information.
http://uri.etsi.org/19602/WalletProvidersList/StatusDetn/EU
Services listed have their status determined by the Member State notifying the wallet provider and related services under the applicable European legislation, as further described in the 'Scheme information URI' pointed-to information.
http://uri.etsi.org/19602/WRPACProvidersList/StatusDetn/EU
Services listed have their status determined by the Member State notifying the provider of wallet relying party access certificates and related services under the applicable European legislation, as further described in the 'Scheme information URI' pointed-to information.
http://uri.etsi.org/19602/WRPRCrovidersList/StatusDetn/EU
Services listed have their status determined by the Member State notifying the provider of wallet relying party registration certificates and related services under the applicable European legislation, as further described in the 'Scheme information URI' pointed-to information.
http://uri.etsi.org/19602/PubEAAProvidersList/StatusDetn/EU
Services listed have their status determined by the Member State notifying the public sector bodies issuing electronic attestation of attribute and related services under the applicable European legislation, as further described in the 'Scheme information URI' pointed-to information.
http://uri.etsi.org/19602/RegistrarsAndRegistersList/StatusDetn/EU
Services listed have their status determined by the Member State notifying the registrars and related register under the applicable European legislation, as further described in the 'Scheme information URI' pointed-to information.

C.2.3 Scheme type/community/rules

http://uri.etsi.org/19602/PIDProviders/schemerules/EU
A URI pointing towards a descriptive text where users can obtain information about: • the specific policy/rules against which providers of person identity data and related services included in the list are approved and assessed, and from which the type of scheme or community may be determined; • the description about how to use and interpret the content of the list of providers of person identity data.
http://uri.etsi.org/19602/WalletProvidersList/schemerules/EU
A URI pointing towards a descriptive text where users can obtain information about: • the specific policy/rules against which wallet providers and related services included in the list are approved and assessed, and from which the type of scheme or community may be determined; • the description about how to use and interpret the content of the list of wallet providers.
http://uri.etsi.org/19602/WRPACProvidersList/schemerules/EU
A URI pointing towards a descriptive text where users can obtain information about: • the specific policy/rules against which providers of wallet relying party access certificates and related services included in the list are approved and assessed, and from which the type of scheme or community may be determined; • the description about how to use and interpret the content of the list of providers of wallet relying party access certificates.
http://uri.etsi.org/19602/WRPRCProvidersList/schemerules/EU
A URI pointing towards a descriptive text where users can obtain information about: • the specific policy/rules against which providers of wallet relying party registration certificates and related services included in the list are approved and assessed, and from which the type of scheme or community may be determined; • the description about how to use and interpret the content of the list of providers of wallet relying party registration certificates.
http://uri.etsi.org/19602/PubEAAProvidersList/schemerules/EU
A URI pointing towards a descriptive text where users can obtain information about: • the specific policy/rules against which public sector bodies issuing electronic attestation of attribute and related services included in the list are approved and assessed, and from which the type of scheme or community may be determined; • the description about how to use and interpret the content of the list of public sector bodies issuing electronic attestation of attribute.
http://uri.etsi.org/19602/RegistrarsAndRegistersList/schemerules/EU
A URI pointing towards a descriptive text where users can obtain information about: • the specific policy/rules against which registrars and registers included in the list are approved and assessed, and from which the type of scheme or community may be determined; • the description about how to use and interpret the content of the list of registrars and registers.

Annex D (normative): Profile for a list of providers of person identity data

D.0 Introduction

The present Annex specifies a LoTE profile aimed at supporting the publication by the European Commission of a list of providers of person identity data according to CIR 2024/2980 [i.2], Article 5(2).

In the present annex, this list is referred to as "the PID providers list".

D.1 General requirements

The PID providers list shall be issued as a list of trusted entities compliant to the present document.

The PID providers list shall comply with the scheme explicit JSON schema definition specified in Annex A of the present document.

The PID providers list elements shall comply with the additional requirements specified in present annex.

D.2 Scheme information

The `ListAndSchemeInformation` component of the PID providers list shall comply with the requirements laid down in Table D.1.

Table D.1: PID providers list scheme information

LoTE component	Additional requirement
LoTE version identifier (clause 6.3.1)	The value of the LoTEVersionIdentifier component shall be "1".
LoTE sequence number (clause 6.3.2)	The first instance of the PID providers list shall be issued with the value of the LoTESequenceNumber component number set to "1".
LoTE type (clause 6.3.3)	The value of the LoTEType component shall be "http://uri.etsi.org/19602/LoTEType/EUPIDProvidersList".
Scheme operator name (clause 6.3.4)	No additional requirements.
Scheme operator address (clause 6.3.5)	No additional requirements.
Scheme name (clause 6.3.6)	No additional requirements.
Scheme information URI (clause 6.3.7)	The SchemeInformationURI component shall contain: a) A URI where users can receive information about the PID providers list; and b) A URI where users can retrieve all previous instances of the PID providers list.
Status determination approach (clause 6.3.8)	The value of the StatusDeterminationApproach shall be "http://uri.etsi.org/19602/PIDProvidersList/StatusDetn/EU".
Scheme type/community/rules (clause 6.3.9)	The value of the SchemeTypeCommunityRules component shall be "http://uri.etsi.org/19602/PIDProviders/schemerules/EU".
Scheme territory (clause 6.3.10)	The value of the SchemeTerritory component shall be "EU".
LoTE policy/legal notice (clause 6.3.11)	No additional requirements.
Historical information period (clause 6.3.12)	The HistoricalInformationPeriod component shall not be present, meaning in compliance to clause 6.3.12 of the present document that historical information is not kept in the list.
Pointers to other LoTEs (clause 6.3.13)	The PointersToOtherLoTE component shall contain a pointer to the present PID providers list itself.
List issue date and time (clause 6.3.14)	No additional requirements.
Next update (clause 6.3.15)	The maximum value between the list issue date and time and the next update shall be 6 months.
Distribution points (clause 6.3.16)	No additional requirements.
Scheme extensions (clause 6.3.17)	No additional requirements.

D.3 List of trusted entities

Each `TrustedEntityInformation` component present in a `TrustedEntity` component listed in the `TrustedEntitiesList` component of the PID providers list shall comply with the requirements laid down in Table D.2.

Table D.2: PID provider information (for each listed PID providers)

LoTE component	Additional requirement
TE name (clause 6.5.1)	The value of the TEName component shall be the name of the provider of person identification data.

LoTE component	Additional requirement
TE trade name (clause 6.5.2)	The TETradeName component shall include an official registration identifier as registered in official records, where such a registered identifier exists, that unambiguously identifies the PID providers. In case the PID providers is a legal entity, the value of this component shall have the same semantics as the one that is required for the organizationIdentifier attribute in requirement LEG-5.1.4-02, LEG-5.1.4-03 and LEG-5.1.4-04 of ETSI EN 319 412-1 [15]. In case the PID providers is a natural person, the value of this component shall have the same semantics as the one that is required for the serialNumber attribute in requirement NAT-5.1.3-02, NAT-5.1.3-03 and NAT-5.1.3-04 of ETSI EN 319 412-1 [15].
TE address (clause 6.5.3)	The TEAddress component shall contain: a) The postal address of the PID providers; and b) The contact email and contact phone number of the provider of person identification data, for matters related to the person identification data it provides.
TE information URI (clause 6.5.4)	The TEInformationURI component shall contain: a) The URL of the webpage that contains the policies, terms and conditions of the provider of person identification data that apply to the provision and use of the person identification data it provides. b) Where applicable, the URL of the webpage that contains additional information about the person identification data provider. c) The URI "http://uri.etsi.org/19602/ListOfTrustedEntities /PIDProvider/CC" where "CC" is replaced by the ISO 3166-1 [2] Alpha 2 code of the Member State which is responsible for that PID provider.
TE information extensions (clause 6.5.5)	Where applicable, the OtherAssociatedBody extension shall be used to provide in an AssociatedBody element the name of the body responsible for ensuring that the person identification data is associated with the wallet unit.
Trusted Entity Services (list of services) (clause 6.4.2)	See Table D.3.

Each `ServiceInformation` component present in the `TrustedEntityServices` component of a `TrustedEntity` component listed in the `TrustedEntitiesList` component of the PID providers list shall comply with the requirements laid down in Table D.3.

Table D.3: Service information (for each service of a listed PID provider)

LoTE component	Additional requirement
Service type identifier (clause 6.6.1)	The following URI may be used as values of the `ServiceTypeIdentifier` component, to the exclusion of any other: a) "http://uri.etsi.org/19602/SvcType/PID/Issuance" to indicate that the service is service under which person identity data are issued; b) "http://uri.etsi.org/19602/SvcType/PID/Revocation" to indicate that the service is a service providing validity status information on person identity data.
Service name (clause 6.6.2)	No additional requirements.
Service digital identity (clause 6.6.3)	The `ServiceDigitalIdentity` component shall contain one or more X.509 certificates that can be used to verify the signature or seal created by the provider of person identification data on the person identification data it provides, and for which the certified identity data include the name, and where applicable, the registration number of the person identification data provider, as specified in the `TEName` and `TETradeName` components respectively.
Service current status (clause 6.6.4)	The `ServiceStatus` component shall not be used. As noted in clause 6.6.0 of the present document, when the `HistoricalInformationPeriod` component is absent, or present with a zero value, and the `ServiceStatus` component is absent, this signifies that all listed trusted entity services have the same approval status in the list of trusted entities scheme. Under the present profile, the absence of the service status means that all listed providers of person identity data are bodies notified by EU Member States as currently responsible for issuing and revoking the person identification data and ensuring that the person identification data of a user is cryptographically bound to a wallet unit. When a listed body is not responsible for this issuance and revocation process, it shall be removed from the list.
Current status starting date and time (clause 6.6.5)	The `StatusStartingTime` component shall not be used. As noted in clause 6.6.0 of the present document, when the `StatusStartingTime` component is absent, this signifies verification of the approval status of a listed entity service can only be done at current time. LoTE without the `StatusStartingTime` component are not suitable for verification of approval statuses of entity services in the past. Under the present profile, an HTTP URI leading to historical previous version of the PID providers list is provided through the `SchemeInformationURI` component.
Scheme service definition URI (clause 6.6.6)	No additional requirements.
Service supply points (clause 6.6.7)	No additional requirements.
TE service definition URI (clause 6.6.8)	No additional requirements.
Service information extensions (clause 6.6.9)	No additional requirements.
History information (clause 6.4.4)	No additional requirements.

D.4 Signature

The PID providers list shall be signed by means of a compact JAdES Baseline B signature as specified in ETSI TS 119 182-1 [3].

Annex E (normative): Profile for a list of wallet providers

E.0 Introduction

The present annex specifies a LoTE profile aimed at supporting the publication by the European Commission of a list of wallet providers according to CIR 2024/2980 [i.2] Article 5(2).

In the present annex, this list is referred to as "the wallet providers list".

E.1 General requirements

The wallet providers list shall be issued as a list of trusted entities compliant to the present document.

The wallet providers list shall comply with the scheme explicit JSON schema definition specified in Annex A of the present document.

The wallet providers list elements shall comply with the additional requirements specified in present annex.

E.2 Scheme information

The `ListAndSchemeInformation` component of the wallet providers list shall comply with the requirements laid down in Table E.1.

Table E.1: Wallet providers list scheme information

LoTE component	Additional requirement
LoTE version identifier (clause 6.3.1)	The value of the `LoTEVersionIdentifier` component shall be "1".
LoTE sequence number (clause 6.3.2)	The first instance of the wallet providers list shall be issued with the value of the `LoTESequenceNumber` component number set to "1".
LoTE type (clause 6.3.3)	The value of the `LoTEType` component shall be "http://uri.etsi.org/19602/LoTEType/EUWalletProvidersList".
Scheme operator name (clause 6.3.4)	No additional requirements.
Scheme operator address (clause 6.3.5)	No additional requirements.
Scheme name (clause 6.3.6)	No additional requirements.
Scheme information URI (clause 6.3.7)	The `SchemeInformationURI` component shall contain: a) a URI where users can receive information about the wallet provider list; and b) a URI where users can retrieve all previous instances of the wallet provider list.
Status determination approach (clause 6.3.8)	The value of the `StatusDeterminationApproach` component shall be http://uri.etsi.org/19602/WalletProvidersList/StatusDetn/EU.
Scheme type/community/rules (clause 6.3.9)	The value of the `SchemeTypeCommunityRules` component shall be "http://uri.etsi.org/19602/WalletProvidersList/schemerules/EU".
Scheme territory (clause 6.3.10)	The value of the `SchemeTerritory` component shall be "EU".
LoTE policy/legal notice (clause 6.3.11)	No additional requirements.
Historical information period (clause 6.3.12)	The `HistoricalInformationPeriod` component shall not be present, meaning in compliance to clause 6.3.12 of the present document that historical information is not kept in the list.
Pointers to other LoTEs (clause 6.3.13)	The `PointersToOtherLoTE` component shall contain a pointer to the present wallet providers list itself.
List issue date and time (clause 6.3.14)	No additional requirements.
Next update (clause 6.3.15)	The maximum value between the list issue date and time and the next update shall be 6 months.
Distribution points (clause 6.3.16)	No additional requirements.
Scheme extensions (clause 6.3.17)	No additional requirements.

E.3 List of trusted entities

Each `TrustedEntityInformation` component present in a `TrustedEntity` component listed in the `TrustedEntitiesList` component of the wallet providers list shall comply with the requirements laid down in Table E.2.

Table E.2: Wallet provider information (for each listed wallet providers)

LoTE component	Additional requirement
TE name (clause 6.5.1)	The value of the `TEName` component shall be the name of the wallet provider.
TE trade name (clause 6.5.2)	The `TETradeName` component shall include an official registration identifier as registered in official records, where such a registered identifier exists, that unambiguously identifies the wallet provider. In case the wallet provider is a legal entity, the value of this component shall have the same semantics as the one that is required for the organizationIdentifier attribute in requirement LEG-5.1.4-02, LEG-5.1.4-03 and LEG-5.1.4-04 of ETSI EN 319 412-1 [15]. In case the wallet provider is a natural person, the value of this component shall have the same semantics as the one that is required for the serialNumber attribute in requirement NAT-5.1.3-02, NAT-5.1.3-03 and NAT-5.1.3-04 of ETSI EN 319 412-1 [15].
TE address (clause 6.5.3)	The `TEAddress` component shall contain: a) the postal address of the wallet provider; and b) the contact email and contact phone number of the wallet provider, for matters related to the wallet solutions it provides.
TE information URI (clause 6.5.4)	The `TEInformationURI` component shall contain: a) The URL of the webpage where the policies, terms and conditions of the wallet provider that apply to the provision and use of the wallet solution it provides are located. b) Where applicable, the URL of the webpage that contains additional information about the wallet provider and the wallet solution. c) The URI "http://uri.etsi.org/19602/ListOfTrustedEntities/WalletProvider/CC" where "CC" is replaced by the ISO 3166-1 [2] Alpha 2 code of the Member State which is responsible for that Wallet provider.
TE information extensions (clause 6.5.5)	Where applicable, the `OtherAssociatedBody` extension shall be used to provide in an `AssociatedBody` element the name of the body responsible for the provision of the wallet solution.
Trusted Entity Services (list of services) (clause 6.4.2)	See Table E.3.

Each `ServiceInformation` component present in the `TrustedEntityServices` component of a `TrustedEntity` component listed in the `TrustedEntitiesList` component of the wallet providers list shall comply with the requirements laid down in Table E.3.

Table E.3: Service information (for each service of a listed wallet provider

LoTE component	Additional requirement
Service type identifier (clause 6.6.1)	The following URI may be used as values of the `ServiceTypeIdentifier` component, to the exclusion of any other: a) "http://uri.etsi.org/19602/SvcType/WalletSolution/Issuance" to indicate that the service is service under which a wallet solution is issued; b) "http://uri.etsi.org/19602/SvcType/WalletSolution/Revocation" to indicate that the service is a service providing validity status information on a wallet solution.
Service name (clause 6.6.2)	The value of the `ServiceName` component shall be the name of a wallet solution provided by the wallet provider identified through the `TEName` component, as the Commission shall publish this information in the Official Journal of the European Union pursuant to Article 5d of Regulation (EU) No 910/2014 [i.1].
Service digital identity (clause 6.6.3)	The `ServiceDigitalIdentity` component shall contain one or more X.509 certificates that can be used to authenticate and validate the components of the wallet unit the wallet provider provides under the wallet solution identified through the `ServiceName` component, and for which the certified identity data includes the name, and where applicable, the registration number of the wallet provider, as specified in the `TEName` and `TETradeName` components respectively.
Service current status (clause 6.6.4)	The `ServiceStatus` component shall not be used. As noted in clause 6.6.0 of the present document, when the `HistoricalInformationPeriod` component is absent, or present with a zero value, and the `ServiceStatus` component is absent, this signifies that all listed trusted entity services have the same approval status in the list of trusted entities scheme. Under the present profile, the absence of the service status means that all listed wallet solution are certified wallet solutions. When the certification of a wallet solution is withdrawn or expired, the corresponding entry in the wallet provider list shall be removed from the TE service entries under the wallet provider. When no more certified wallet solution are listed under a wallet provider, the wallet provider entry itself shall be removed from the list.
Current status starting date and time (clause 6.6.5)	The `StatusStartingTime` component shall not be used. As noted in clause 6.6.0 of the present document, when the `StatusStartingTime` component is absent, this signifies verification of the approval status of a listed entity service can only be done at current time. LoTE without the `StatusStartingTime` component are not suitable for verification of approval statuses of entity services in the past. Under the present profile, an HTTP URI leading to historical previous version of the wallet providers list is provided through the `SchemeInformationURI` component.
Scheme service definition URI (clause 6.6.6)	No additional requirements.
Service supply points (clause 6.6.7)	No additional requirements.
TE service definition URI (clause 6.6.8)	No additional requirements.
Service information extensions (clause 6.6.9)	The `ServiceUniqueIdentifier` extension shall be used to provide the reference number of the wallet solution identified through the `ServiceName` component, as the Commission shall publish this information in the Official Journal of the European Union pursuant to Article 5d of Regulation (EU) No 910/2014 [i.1].
History information (clause 6.4.4)	No additional requirements.

E.4 Signature

The wallet providers list shall be signed by means of a compact JAdES Baseline B signature as specified in ETSI TS 119 182-1 [3].

Annex F (normative): Profile for a list of providers of wallet relying party access certificates

F.0 Introduction

The present annex specifies a LoTE profile aimed at supporting the publication by the European Commission of a list of wallet relying parties access certificates according to CIR 2024/2980 [i.2] Article 5(2).

In the present annex, this list is referred to as "the WRPAC providers list".

F.1 General requirements

The WRPAC providers list shall be issued as a list of trusted entities compliant to the present document.

The WRPAC providers list shall comply with the scheme explicit JSON schema definition specified in Annex A of the present document.

The WRPAC providers list components shall comply with the additional requirements specified in present annex.

F.2 Scheme information

The `ListAndSchemeInformation` component of the WRPAC providers list shall comply with the requirements laid down in Table F.1.

Table F.1: WRPAC providers list scheme information

LoTE component	Additional requirement
LoTE version identifier (clause 6.3.1)	The value of the `LoTEVersionIdentifier` component shall be "1".
LoTE sequence number (clause 6.3.2)	The first instance of the WRPAC providers list shall be issued with the value of the `LoTESequenceNumber` component number set to "1".
LoTE type (clause 6.3.3)	The value of the `LoTEType` component shall be "http://uri.etsi.org/19602/LoTEType/EUWRPACProvidersList".
Scheme operator name (clause 6.3.4)	No additional requirements.
Scheme operator address (clause 6.3.5)	No additional requirements.
Scheme name (clause 6.3.6)	No additional requirements.
Scheme information URI (clause 6.3.7)	The `SchemeInformationURI` component shall contain: a) a URI where users can receive information about the WRPAC list; and b) a URI where users can retrieve all previous instances of the WRPAC list.
Status determination approach (clause 6.3.8)	The value of the `StatusDeterminationApproach` component shall be "http://uri.etsi.org/19602/WRPACProvidersList/StatusDetn/EU".
Scheme type/community/rules (clause 6.3.9)	The value of the `SchemeTypeCommunityRules` component shall be "http://uri.etsi.org/19602/WRPACProvidersList/schemerules/EU".
Scheme territory (clause 6.3.10)	The value of the `SchemeTerritory` component shall be "EU".
LoTE policy/legal notice (clause 6.3.11)	No additional requirements.
Historical information period (clause 6.3.12)	The `HistoricalInformationPeriod` component shall not be present, meaning in compliance to clause 6.3.12 of the present document that historical information is not kept in the list.
Pointers to other LoTEs (clause 6.3.13)	The `PointersToOtherLoTE` component shall contain a pointer to the present WRPAC providers list itself.
List issue date and time (clause 6.3.14)	No additional requirements.
Next update (clause 6.3.15)	The maximum value between the list issue date and time and the next update shall be 6 months.
Distribution points (clause 6.3.16)	No additional requirements.
Scheme extensions (clause 6.3.17)	No additional requirements.

F.3 List of trusted entities

Each `TrustedEntityInformation` component present in a `TrustedEntity` component listed in the `TrustedEntitiesList` component of the WRPAC providers list shall comply with the requirements laid down in Table F.2.

Table F.2: WRPAC provider information (for each listed WRPAC providers)

LoTE component	Additional requirement
TE name (clause 6.5.1)	The value of the `TEName` component shall be the name of the provider of wallet relying party access certificate.
TE trade name (clause 6.5.2)	The `TETradeName` component shall include an official registration identifier as registered in official records, where such a registered identifier exists, that unambiguously identifies the provider of the wallet relying party access certificate. In case the WRPAC provider is a legal entity, the value of this component shall have the same semantics as the one that is required for the organizationIdentifier attribute in requirement LEG-5.1.4-02, LEG-5.1.4-03 and LEG-5.1.4-04 of ETSI EN 319 412-1 [15]. In case the WRPAC provider is a natural person, the value of this component shall have the same semantics as the one that is required for the serialNumber attribute in requirement NAT-5.1.3-02, NAT-5.1.3-03 and NAT-5.1.3-04 of ETSI EN 319 412-1 [15].
TE address (clause 6.5.3)	The `TEAddress` component shall contain: a) The postal address of the WRPAC provider; and b) The contact email and contact phone number of the provider of wallet relying party access certificates, for matters related to the access certificates it provides to wallet-relying parties.
TE information URI (clause 6.5.4)	The TEInformationURI component shall contain: a) The URL of the webpage that contains the policies, terms and conditions of the provider of wallet relying party access certificates that apply to the provision and use of the access certificates it provides to wallet-relying parties. b) Where applicable, the URL of the webpage that contains additional information about the provider and the access certificates it provides to wallet-relying parties. c) The URI "http://uri.etsi.org/19602/ListOfTrustedEntities/WRPACProvider/CC" where "CC" is replaced by the ISO 3166-1 [2] Alpha 2 code of the Member State which is responsible for that WRPAC provider.
TE information extensions (clause 6.5.5)	No additional requirements.
Trusted Entity Services (list of services) (clause 6.4.2)	See Table F.3.

Each `ServiceInformation` component present in the `TrustedEntityServices` component of a `TrustedEntity` component listed in the `TrustedEntitiesList` component of the WRPAC providers list shall comply with the requirements laid down in Table F.3.

Table F.3: Service information (for each service of a listed WRPAC provider)

LoTE component	Additional requirement
Service type identifier (clause 6.6.1)	The following URI may be used as values of the `ServiceTypeIdentifier` component, to the exclusion of any other: a) "http://uri.etsi.org/19602/SvcType/WRPAC/Issuance to indicate that the service is service under which wallet relying parties access certificates are issued; b) "http://uri.etsi.org/19602/SvcType/WRPAC/Revocation" to indicate that the service is a service providing validity status information on wallet relying party access certificates.
Service name (clause 6.6.2)	No additional requirements.
Service digital identity (clause 6.6.3)	The `ServiceDigitalIdentity` component shall contain one or more X.509 certificates that can be used to verify the signature or seal created by the provider of wallet-relying party access certificates on the access certificate it provides to wallet-relying parties, with, where applicable, the information required to distinguish wallet-relying party access certificates from other certificates.
Service current status (clause 6.6.4)	The `ServiceStatus` component shall not be used. As noted in clause 6.6.0 of the present document, when the `HistoricalInformationPeriod` component is absent, or present with a zero value, and the `ServiceStatus` component is absent, this signifies that all listed trusted entity services have the same approval status in the list of trusted entities scheme. Under the present profile, the absence of the service status means that all listed WRPAC providers are currently mandated by an EU Member State to issue relying party access certificates to wallet-relying parties registered in that Member State. When a listed WRPAC provider does not have that mandate anymore, it shall be removed from the list.
Current status starting date and time (clause 6.6.5)	The `StatusStartingTime` component shall not be used. As noted in clause 6.6.0 of the present document, when the `StatusStartingTime` component is absent, this signifies verification of the approval status of a listed entity service can only be done at current time. LoTE without the `StatusStartingTime` component are not suitable for verification of approval statuses of entity services in the past. Under the present profile, an HTTP URI leading to historical previous version of the WRPAC providers list is provided through the `SchemeInformationURI` component.
Scheme service definition URI (clause 6.6.6)	No additional requirements.
Service supply points (clause 6.6.7)	No additional requirements.
TE service definition URI (clause 6.6.8)	No additional requirements.
Service information extensions (clause 6.6.9)	No additional requirements.
History information (clause 6.4.4)	No additional requirements.

F.4 Signature

The WRPAC providers list shall be signed by means of a compact JAdES Baseline B signature as specified in ETSI TS 119 182-1 [3].

Annex G (normative): Profile for a list of providers of wallet relying party registration certificates

G.0 Introduction

The present annex specifies a LoTE profile aimed at supporting the publication by the European Commission of a list of wallet relying parties registration certificates.

In the present annex, this list is referred to as "the WRPRC providers list".

G.1 General requirements

The WRPRC providers list shall be issued as a list of trusted entities compliant to the present document.

The WRPRC providers list shall comply with the scheme explicit JSON schema definition specified in Annex A of the present document.

The WRPRC providers list components shall comply with the additional requirements specified in present annex.

G.2 Scheme information

The `ListAndSchemeInformation` component of the WRPRC providers list shall comply with the requirements laid down in Table G.1.

Table G.1: WRPRC providers list scheme information

LoTE component	Additional requirement
LoTE version identifier (clause 6.3.1)	The value of the `LoTEVersionIdentifier` component shall be "1".
LoTE sequence number (clause 6.3.2)	The first instance of the WRPRC providers list shall be issued with the value of the `LoTESequenceNumber` component number set to "1".
LoTE type (clause 6.3.3)	The value of the `LoTEType` component shall be "http://uri.etsi.org/19602/LoTEType/EUWRPRCProvidersList".
Scheme operator name (clause 6.3.4)	No additional requirements.
Scheme operator address (clause 6.3.5)	No additional requirements.
Scheme name (clause 6.3.6)	No additional requirements.
Scheme information URI (clause 6.3.7)	The `SchemeInformationURI` component shall contain: a) a URI where users can receive information about the WRPRC list; and b) a URI where users can retrieve all previous instances of the WRPRC list.
Status determination approach (clause 6.3.8)	The value of the `StatusDeterminationApproach` component shall be "http://uri.etsi.org/19602/WRPRCrovidersList/StatusDetn/EU".
Scheme type/community/rules (clause 6.3.9)	The value of the `SchemeTypeCommunityRules` component shall be "http://uri.etsi.org/19602/WRPRCProvidersList/schemerules/EU".
Scheme territory (clause 6.3.10)	The value of the `SchemeTerritory` component shall be "EU".
LoTE policy/legal notice (clause 6.3.11)	No additional requirements.
Historical information period (clause 6.3.12)	The `HistoricalInformationPeriod` component shall not be present, meaning in compliance to clause 6.3.12 of the present document that historical information is not kept in the list.
Pointers to other LoTEs (clause 6.3.13)	The `PointersToOtherLoTE` component shall contain a pointer to the present WRPRC providers list itself.
List issue date and time (clause 6.3.14)	No additional requirements.
Next update (clause 6.3.15)	The maximum value between the list issue date and time and the next update shall be 6 months.
Distribution points (clause 6.3.16)	No additional requirements.
Scheme extensions (clause 6.3.17)	No additional requirements.

G.3 List of trusted entities

Each `TrustedEntityInformation` component present in a `TrustedEntity` component listed in the `TrustedEntitiesList` component of the WRPRC providers list shall comply with the requirements laid down in Table G.2.

Table G.2: WRPRC provider information (for each listed WRPRC providers)

LoTE component	Additional requirement
TE name (clause 6.5.1)	The value of the `TEName` component shall be the name of the provider of wallet relying party registration certificate.
TE trade name (clause 6.5.2)	The `TETradeName` component shall include an official registration identifier as registered in official records, where such a registered identifier exists, that unambiguously identifies the provider of the wallet relying party registration certificate. a) In case the WRPRC provider is a legal entity, the value of this component shall have the same semantics as the one that is required for the organizationIdentifier attribute in requirement LEG-5.1.4-02, LEG-5.1.4-03 and LEG-5.1.4-04 of ETSI EN 319 412-1 [15]. b) In case the WRPRC provider is a natural person, the value of this component shall have the same semantics as the one that is required for the serialNumber attribute in requirement NAT-5.1.3-02, NAT-5.1.3-03 and NAT-5.1.3-04 of ETSI EN 319 412-1 [15].
TE address (clause 6.5.3)	The `TEAddress` component shall contain: The postal address of the WRPRC provider; and The contact email and contact phone number of the provider of wallet relying party registration certificates, for matters related to the registration certificates it provides to wallet-relying parties.
TE information URI (clause 6.5.4)	The `TEInformationURI` component shall contain: a) The URL of the webpage that contains the policies, terms and conditions of the provider of wallet relying party registration certificates that apply to the provision and use of the registration certificates it provides to wallet-relying parties. b) Where applicable, the URL of the webpage that contains additional information about the provider and the registration certificates it provides to wallet-relying parties. c) The URI "http://uri.etsi.org/19602/ListOfTrustedEntities/WRPRCProvider/CC" where "CC" is replaced by the ISO 3166-1 [2] Alpha 2 code of the Member State which is responsible for that WRPRC provider.
TE information extensions (clause 6.5.5)	No additional requirements.
Trusted Entity Services (list of services) (clause 6.4.2)	See Table G.3.

Each `ServiceInformation` component present in the `TrustedEntityServices` component of a `TrustedEntity` component listed in the `TrustedEntitiesList` component of the WRPRC providers list shall comply with the requirements laid down in Table G.3.

Table G.3: Service information (for each service of a listed WRPRC provider)

LoTE component	Additional requirement
Service type identifier (clause 6.6.1)	The following URI may be used as values of the `ServiceTypeIdentifier` component, to the exclusion of any other: a) "http://uri.etsi.org/19602/SvcType/WRPRC/Issuance" to indicate that the service is service under which wallet relying parties access certificates are issued; b) "http://uri.etsi.org/19602/SvcType/WRPRC/Revocation" to indicate that the service is a service providing validity status information on wallet relying party access certificates.
Service name (clause 6.6.2)	No additional requirements.
Service digital identity (clause 6.6.3)	The `ServiceDigitalIdentity` component shall contain one or more X.509 certificates that can be used to verify the signature or seal created by the provider of wallet-relying party registration certificates on the registration certificate it provides to wallet-relying parties, with, where applicable, the information required to distinguish wallet-relying party registration certificates from other certificates.
Service current status (clause 6.6.4)	The `ServiceStatus` component shall not be used. As noted in clause 6.6.0 of the present document, when the `HistoricalInformationPeriod` component is absent, or present with a zero value, and the `ServiceStatus` component is absent, this signifies that all listed trusted entity services have the same approval status in the list of trusted entities scheme. Under the present profile, the absence of the service status means that all listed WRPRC providers are currently mandated by an EU Member State to issue relying party registration certificates to wallet-relying parties registered in that Member State. When a listed WRPRC provider does not have that mandate anymore, it shall be removed from the list.
Current status starting date and time (clause 6.6.5)	The `StatusStartingTime` component shall not be used. As noted in clause 6.6.0 of the present document, when the `StatusStartingTime` component is absent, this signifies verification of the approval status of a listed entity service can only be done at current time. LoTE without the `StatusStartingTime` component are not suitable for verification of approval statuses of entity services in the past. Under the present profile, an HTTP URI leading to historical previous version of the WRPRC providers list is provided through the `SchemeInformationURI` component.
Scheme service definition URI (clause 6.6.6)	No additional requirements.
Service supply points (clause 6.6.7)	No additional requirements.
TE service definition URI (clause 6.6.8)	No additional requirements.
Service information extensions (clause 6.6.9)	No additional requirements.
History information (clause 6.4.4)	No additional requirements.

G.4 Signature

The WRPRC providers list shall be signed by means of a compact JAdES Baseline B signature as specified in ETSI TS 119 182-1 [3].

Annex H (normative): Profile for a list of public sector bodies issuing electronic attestation of attributes

H.0 Introduction

The present annex specifies a LoTE profile aimed at supporting the publication by the European Commission of a list of public sector bodies issuing electronic attestation of attribute referred to in Article 3, point (46) of Regulation (EU) 910/2014 [i.1]. issued by CIR 2025/1569 [i.3], Article 6(1).

In the present annex, this list is referred to as "the Pub-EAA providers list".

H.1 General requirements

The Pub-EAA providers list shall be issued as a list of trusted entities compliant to the present document.

The Pub-EAA providers list shall comply with either the scheme explicit XML schema definition specified in Annex A of the present document or the scheme explicit JSON schema definition specified in Annex A of the present document.

The Pub-EAA providers list components shall comply with the additional requirements specified in present annex.

H.2 Scheme information

The `ListAndSchemeInformation` component of the Pub-EAA providers list shall comply with the requirements laid down in Table H.1.

Table H.1: Pub-EAA providers list scheme information

LoTE component	Additional requirement
LoTE version identifier (clause 6.3.1)	The value of the `LoTEVersionIdentifier` component shall be "1".
LoTE sequence number (clause 6.3.2)	The first instance of the Pub-EAA providers list shall be issued with the value of the `LoTESequenceNumber` component number set to "1".
LoTE type (clause 6.3.3)	The value of the `LoTEType` component shall be "http://uri.etsi.org/19602/LoTEType/EUPubEAAProvidersList".
Scheme operator name (clause 6.3.4)	No additional requirements.
Scheme operator address (clause 6.3.5)	No additional requirements.
Scheme name (clause 6.3.6)	No additional requirements.
Scheme information URI (clause 6.3.7)	The `SchemeInformationURI` component shall contain a URI where users can receive information about the Pub-EAA providers list.
Status determination approach (clause 6.3.8)	The value of the `StatusDeterminationApproach` component shall be "http://uri.etsi.org/19602/PubEAAProvidersList/StatusDetn/EU".
Scheme type/community/rules (clause 6.3.9)	The value of the `SchemeTypeCommunityRules` component shall be "http://uri.etsi.org/19602/PubEAAProvidersList/schemerules/EU".
Scheme territory (clause 6.3.10)	The value of the `SchemeTerritory` component shall be "EU".
LoTE policy/legal notice (clause 6.3.11)	No additional requirements.
Historical information period (clause 6.3.12)	The `HistoricalInformationPeriod` component shall be present with value "65535".
Pointers to other LoTEs (clause 6.3.13)	The `PointersToOtherLoTE` component shall not be present.
List issue date and time (clause 6.3.14)	No additional requirements.
Next update (clause 6.3.15)	The maximum value between the list issue date and time and the next update shall be 6 months.
Distribution points (clause 6.3.16)	No additional requirements.
Scheme extensions (clause 6.3.17)	No additional requirements.

H.3 List of trusted entities

Each `TrustedEntityInformation` component present in a `TrustedEntity` component listed in the `TrustedEntitiesList` component of the Pub-EAA providers list shall comply with the requirements laid down in Table H.2.

Table H.2: Pub-EAA provider information (for each listed Pub-EAA providers)

LoTE component	Additional requirement
TE name (clause 6.5.1)	The value of the TEName component shall be the name of the Pub-EAA provider. The name of the Pub-EAA provider shall be the name which is used in formal legal registrations and official records and to which any formal communication, whether physical or electronic, should be addressed.
TE trade name (clause 6.5.2)	The TETradeName component shall include: a) An official registration identifier as registered in official records, where such a registered identifier exists, that unambiguously identifies the Pub-EAA provider. In case the Pub-EAA provider is a legal entity, the value of this component shall have the same semantics as the one that is required for the organizationIdentifier attribute in requirement LEG-5.1.4-02, LEG-5.1.4-03 and LEG-5.1.4-04 of ETSI EN 319 412-1 [15]. In case the Pub-EAA provider is a natural person, the value of this component shall have the same semantics as the one that is required for the serialNumber attribute in requirement NAT-5.1.3-02, NAT-5.1.3-03 and NAT-5.1.3-04 of ETSI EN 319 412-1 [15]. b) The reference to the Union or national law under which the public sector body is established as the responsible for the authentic source on the basis of which the electronic attestation of attributes is issued or is designated to act on behalf of the public sector body that is responsible for the authentic source, formatted as a URI as follows: a. "OJ:" for the scheme part; followed by b. 2 characters: i. "EU" if the reference is a reference to Union law; or ii. The 2 character ISO 3166-1 [2] country code of the EU Member State in which the public sector body is established, if the reference is a reference to national law; and iii. identifier uniquely representing the Union or national law.
TE address (clause 6.5.3)	The TEAddress component shall contain: a) the postal address of the Pub-EAA provider; and b) the contact email and contact phone number of the Pub-EAA provider, for matters related to the electronic attestation of attributes it issues. c) the URI "http://uri.etsi.org/19602/ListOfTrustedEntities/PubEAAProvider/CC" where "CC" is replaced by the ISO 3166-1 [2] Alpha 2 code of the Member State which is responsible for that Pub-EAA provider.
TE information URI (clause 6.5.4)	The TEInformationURI component shall contain the URL of the webpage that contains the policies, terms and conditions of the Pub-EAA provider, and other generic information that apply to the provision and use of the electronic attestation of attributes it provides.
TE information extensions (clause 6.5.5)	No additional requirements.
Trusted Entity Services (list of services) (clause 6.4.2)	See Table H.3.

Each `ServiceInformation` component present in the `TrustedEntityServices` component of a `TrustedEntity` component listed in the `TrustedEntitiesList` component of the Pub-EAA providers list shall comply with the requirements laid down in Table H.3.

Table H.3: Service information (for each service of a listed Pub-EAA provider)

LoTE component	Additional requirement
Service type identifier (clause 6.6.1)	The following URI may be used as values of the ServiceTypeIdentifier component, to the exclusion of any other:

LoTE component	Additional requirement
	a) "http://uri.etsi.org/19602/SvcType/PubEAA/Issuance" to indicate that the service is a service under which electronic attestation of attribute are issued by a notified body on behalf of an authentic source; b) "http://uri.etsi.org/19602/SvcType/PubEAA/Revocation" to indicate that the service is a service providing validity status information on wallet relying party access certificates.
Service name (clause 6.6.2)	No additional requirements.
Service digital identity (clause 6.6.3)	The ServiceDigitalIdentity component may contain one or more X.509 certificates that can be used to verify the signature or seal created by the Pub-EAA provider on the electronic attestation of attributes it provides. NOTE: This can be the X.509 certificate corresponding to the private key used to sign or seal the electronic attestation of attributes, or it can be the X.509 certificate corresponding to a CA issuing such X.509 certificates provided the other requirements applying to the present component are met. When multiple X.509 certificates are present in the ServiceDigitalIdentity component, they shall all relate to the same public key. When multiple X.509 certificates are present in the ServiceDigitalIdentity component, they shall have identical subject names identifying the Pub-EAA provider identified through the TEName component. The listed X.509 certificate(s) shall have the organizationName attribute present in its (their) subject name(s). The organizationName attribute present in the subject name shall strictly match the value of the TEName component.
Service current status (clause 6.6.4)	The ServiceStatus component shall be present. The following values may be used to the exclusion of any other: http://uri.etsi.org/19602/PubEAAProvidersList/SvcStatus/notified to indicate that the listed entity has been notified to the Commission as a providers of electronic attestations of attributes issued by or on behalf of a public sector body responsible for an authentic source by the EU MS in which it is established, and can electronic attestation of attributes through the listed service; or http://uri.etsi.org/19602/PubEAAProvidersList/SvcStatus/withdrawn to indicate that the listed entity may not issue electronic attestation of attributes through the listed service anymore. When the listed entity is not to be considered as a providers of electronic attestations of attributes issued by or on behalf of a public sector body responsible for an authentic source anymore, all services listed under the corresponding trusted entity entry shall have their current status set to http://uri.etsi.org/19602/PubEAAProvidersList/SvcStatus/withdrawn
Current status starting date and time (clause 6.6.5)	LoTESO shall ensure the consistency of the (re)-issuance of a LoTE and the actual date when a service status has been updated (e.g. notified or withdrawn), i.e. the value of the ListIssueDateTime component the time of signing the LoTE and the time of change. The date and time associated to the new current status of a listed service shall not be set before the date of (re)issuance of the LoTE as retroactive status change can have undesired effects to previous validations of listed services and of their outputs.
Scheme service definition URI (clause 6.6.6)	No additional requirements.
Service supply points (clause 6.6.7)	No additional requirements.
TE service definition URI (clause 6.6.8)	No additional requirements.
Service information extensions (clause 6.6.9)	No additional requirements.
History information (clause 6.4.4)	The ServiceDigitalIdentity component in a ServiceHistoryInstance component shall contain at least the X509SKI component. The ServiceDigitalIdentity component in a ServiceHistoryInstance component shall not contain an X509Certificate component.

H.4 Signature

When a JSON binding is used to issue the Pub-EAA providers list, the list shall be signed by means of a compact JAdES Baseline B signature as specified in ETSI TS 119 182-1 [3].

When an XML binding is used to issue the Pub-EAA providers list, the `Signature` component shall be present with a XAdES Baseline B signature as specified in ETSI EN 319 132-1 [4], meeting the following requirements:

1) It shall be an enveloped digital signature.

2) Its `ds:SignedInfo` element shall contain a `ds:Reference` element with the URI attribute set to an empty string (i.e. URI=""), so as to refer to the entire document. This `ds:Reference` element shall satisfy the following requirements:

   a) It shall contain only one `ds:Transforms` element.

   b) This `ds:Transforms` element shall contain two `ds:Transform` elements. The first one will be one whose `Algorithm` attribute indicates the enveloped transformation with the value: "http://www.w3.org/2000/09/xmldsig#enveloped-signature". The second one will be one whose Algorithm attribute instructs to perform the exclusive canonicalization "http://www.w3.org/2001/10/xml-exc-c14n#".

3) ds:CanonicalizationMethod shall be "http://www.w3.org/2001/10/xml-exc-c14n#".

4) It may have other `ds:Reference` elements.

Annex I (normative): Profile for a list of registrars and registers

I.0 Introduction

The present annex specifies a LoTE profile aimed at supporting the publication by the European Commission of a list of on registrars of wallet-relying parties and registers of wallet-relying parties according to CIR 2024/2980 [i.2] Article 5(1).

In the present annex, this list is referred to as "the list of registrars and registers".

I.1 General requirements

The list of registrars and registers shall be issued as a list of trusted entities compliant to the present document.

The list of registrars and registers shall comply with the scheme explicit JSON schema definition specified in Annex A of the present document.

The list of registrars and registers components shall comply with the additional requirements specified in present annex.

I.2 Scheme information

The `ListAndSchemeInformation` component of the list of registrars and registers shall comply with the requirements laid down in Table I.1.

Table I.1: List of registrars and registers scheme information

LoTE component	Additional requirement
LoTE version identifier (clause 6.3.1)	The value of the LoTEVersionIdentifier component shall be "1".
LoTE sequence number (clause 6.3.2)	The first instance of the list of registrars and registers shall be issued with the value of the LoTESequenceNumber component number set to "1".
LoTE type (clause 6.3.3)	The value of the LoTEType component shall be "http://uri.etsi.org/19602/LoTEType/EURegistrarsAndRegistersList".
Scheme operator name (clause 6.3.4)	No additional requirements.
Scheme operator address (clause 6.3.5)	No additional requirements.
Scheme name (clause 6.3.6)	No additional requirements.
Scheme information URI (clause 6.3.7)	The SchemeInformationURI component shall contain: a) A URI where users can receive information about the list of registrars and registers; and b) A URI where users can retrieve all previous instances of the list of registrars and registers.
Status determination approach (clause 6.3.8)	The value of the StatusDeterminationApproach component shall be "http://uri.etsi.org/19602/RegistrarsAndRegistersList/StatusDetn/EU"
Scheme type/community/rules (clause 6.3.9)	The value of the SchemeTypeCommunityRules component shall be "http://uri.etsi.org/19602/RegistrarsAndRegistersList/schemerules/EU".
Scheme territory (clause 6.3.10)	The value of the SchemeTerritory component shall be "EU".
LoTE policy/legal notice (clause 6.3.11)	No additional requirements.
Historical information period (clause 6.3.12)	The HistoricalInformationPeriod component shall not be present, meaning in compliance to clause 6.3.12 of the present document that historical information is not kept in the list.

LoTE component	Additional requirement
Pointers to other LoTEs (clause 6.3.13)	The PointersToOtherLoTE component shall contain a pointer to the present list of registers and registrars itself.
List issue date and time (clause 6.3.14)	No additional requirements.
Next update (clause 6.3.15)	The maximum value between the list issue date and time and the next update shall be 6 months.
Distribution points (clause 6.3.16)	No additional requirements.
Scheme extensions (clause 6.3.17)	No additional requirements.

I.3 List of trusted entities

Each `TrustedEntityInformation` component present in a `TrustedEntity` component listed in the `TrustedEntitiesList` component of the list of registrars and registers shall comply with the requirements laid down in Table I.2.

Table I.2: Registrar information (for each listed registrars)

LoTE component	Additional requirement
TE name (clause 6.5.1)	The value of the TEName component shall be the name of the registrar.
TE trade name (clause 6.5.2)	The TETradeName component shall include, where applicable, the registration number of the registrar.
TE address (clause 6.5.3)	The TEAddress component shall contain: a) the postal address of the registrar; and b) the contact email and contact phone number of the registrar, for matters related to the register it is responsible for.
TE information URI (clause 6.5.4)	The TEInformationURI component shall contain: a) the URL of the webpage where the registration policy that applies to the register and related information are located; b) where applicable, the URL of a webpage for additional information about the registrar and the register. c) the URI "http://uri.etsi.org/19602/ListOfTrustedEntities/Registrar/CC" where "CC" is replaced by the ISO 3166-1 [2] Alpha 2 code of the Member State which is responsible for that registrar.
TE information extensions (clause 6.5.5)	No additional requirements.
Trusted Entity Services (list of services) (clause 6.4.2)	See Table I.3.

Each `ServiceInformation` component present in the `TrustedEntityServices` component of a `TrustedEntity` component listed in the `TrustedEntitiesList` component of the list of registrars and registers shall comply with the requirements laid down in Table I.3.

Table I.3: Register information (for each service of a listed registrars)

LoTE component	Additional requirement
Service type identifier (clause 6.6.1)	The following URI may be used as value of the ServiceTypeIdentifier component, to the exclusion of any other: "http://uri.etsi.org/19602/SvcType/Register".
Service name (clause 6.6.2)	The ServiceName component shall contain the name of the register for which the registrar identified through the TEName component is responsible.

LoTE component	Additional requirement
Service digital identity (clause 6.6.3)	The ServiceDigitalIdentity component shall contain one or more X.509 certificates which can be used to verify the signature or seal created by the registrar on the register data and for which the certified identity data include the name of the registrar, and where applicable, the registration number of the registrar, as specified in the TEName and TETradeName components respectively.
Service current status (clause 6.6.4)	The ServiceStatus component shall not be used. As noted in clause 6.6.0 of the present document, when the HistoricalInformationPeriod component is absent, or present with a zero value, and the ServiceStatus component is absent, this signifies that all listed trusted entity services have the same approval status in the list of trusted entities scheme. Under the present profile, the absence of the service status means that all listed registrars and the registers they are responsible for are currently mandated by an EU Member State to register wallet relying parties in that Member State. When a listed registrar does not have that mandate anymore, it shall be removed from the list.
Current status starting date and time (clause 6.6.5)	The StatusStartingTime component shall not be used. As noted in clause 6.6.0 of the present document, when the StatusStartingTime component is absent, this signifies verification of the approval status of a listed entity service can only be done at current time. LoTE without the StatusStartingTime component are not suitable for verification of approval statuses of entity services in the past. Under the present profile, an HTTP URI leading to historical previous version of the list of registrars and registers is provided through the SchemeInformationURI component.
Scheme service definition URI (clause 6.6.6)	No additional requirements.
Service supply points (clause 6.6.7)	The ServiceSupplyPoint component shall contain the URI where the register is available in a machine processable manner. Any signed or sealed register data that can be obtained at the URI referenced in the ServiceSupplyPoint component shall be able to be authenticated using one of the certificates listed in ServiceDigitalIdentity component.
TE service definition URI (clause 6.6.8)	No additional requirements.
Service information extensions (clause 6.6.9)	No additional requirements.
History information (clause 6.4.4)	No additional requirements.

I.4 Signature

The list of registrars and registers shall be signed by means of a compact JAdES Baseline B signature as specified in ETSI TS 119 182-1 [3].

History

Document history		
V1.1.1	November 2025	Publication