



**Electronic Signatures and Infrastructures (ESI);
Electronic Registered Delivery Services;
Part 3: Formats**

Reference

DEN/ESI-0019522-3

Keywords

e-delivery services, registered e-delivery services, registered electronic mail

ETSI

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
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Foreword

This draft European Standard (EN) has been produced by ETSI Technical Committee Electronic Signatures and Infrastructures (ESI), and is now submitted for the combined Public Enquiry and Vote phase of the ETSI standards EN Approval Procedure.

The present document is part 3 of a multi-part deliverable. Full details of the entire series can be found in part 1 [i.10].

Proposed national transposition dates	
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Modal verbs terminology

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

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1 Scope

The present document specifies the format for the semantic content (metadata, evidence, identification, and Common Service Infrastructure) that flows across the different interfaces of an Electronic Registered Delivery Service (ERDS) as defined in ETSI EN 319 522-2 [1].

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.

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

- [1] ETSI EN 319 522-2: "Electronic Signatures and Infrastructures (ESI); Electronic Registered Delivery Services; Part 2: Semantic contents".
- [2] W3C Recommendation: "XML Signature Syntax and Processing. Version 1.1, 11 April 2013".
- [3] IETF RFC 3061: "A URN Namespace of Object Identifiers".
- [4] CEF eIDAS Technical Sub-group: "eIDAS SAML Attribute profile". Version 1.1.2. October 2016.
- [5] OASIS: "Assertions and Protocols for the OASIS Security Assertion Markup Language (SAML) V2.0", March 2005.
- [6] IETF RFC 5646: "Tags for Identifying Languages".
- [7] IETF RFC 5035: "Enhanced Security Services (ESS) Update: Adding CertID Algorithm Agility".
- [8] OASIS: "Service Metadata Publishing (SMP) Version 1.0", OASIS standard, August 2017.
- [9] ETSI EN 319 532-3: "Electronic Signatures and Infrastructures (ESI); Registered Electronic Mail (REM) Services; Part 3: Formats".
- [10] ETSI EN 319 522-4-3: "Electronic Signatures and Infrastructures (ESI); Electronic Registered Delivery Services; Part 4: Bindings; Sub-part 3: Capability/requirements bindings".

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

- [i.1] Commission implementing Regulation (EU) 2015/1502 "on setting out minimum technical specifications and procedures for assurance levels for electronic identification means pursuant to Article 8(3) of Regulation (EU) No 910/2014 of the European Parliament and of the Council on electronic identification and trust services for electronic transactions in the internal market".
- [i.2] NIST Special Publication 800-63: "Digital Identity Guidelines".
- [i.3] NIST Special Publication 800-63-A: "Digital Identity Guidelines. Enrolment and Identity Proofing Requirements".
- [i.4] NIST Special Publication 800-63-B: "Digital Identity Guidelines. Authentication and Lifecycle Management".
- [i.5] NIST Special Publication 800-63-C: "Digital Identity Guidelines. Federation and Assertions".
- [i.6] IETF RFC 5322: "Internet Message Format".
- [i.7] ETSI EN 319 132-1: "Electronic Signatures and Infrastructures (ESI); XAdES digital signatures; Part 1: Building blocks and XAdES baseline signatures".
- [i.8] IETF RFC 7522: "Security Assertion Markup Language (SAML) 2.0 Profile for OAuth 2.0 Client Authentication and Authorization Grants".
- [i.9] ETSI TS 119 612: "Electronic Signatures and Infrastructures (ESI); Trusted Lists".
- [i.10] ETSI EN 319 522-1: "Electronic Signatures and Infrastructures (ESI); Electronic Registered Delivery Services; Part 1: Framework and Architecture".
- [i.11] OASIS: "AS4 Profile of ebMS 3.0 Version 1.0, OASIS Standard", January 2013.
- [i.12] ETSI EN 319 522-4-1: "Electronic Signatures and Infrastructures (ESI); Electronic Registered Delivery Services; Part 4: Bindings; Sub-part 1: Message delivery bindings".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in ETSI EN 319 522-1 [i.10] apply.

3.2 Abbreviations

For the purposes of the present document, the abbreviations given in ETSI EN 319 522-1 [i.10] apply.

4 Metadata formats

4.1 Introduction

The following clause aims at providing specific formats for metadata components identified in ETSI EN 319 522-2 [1], clause 6. Clause 4.2 maps metadata components in IETF RFC 5322 format; clause 4.3 maps metadata components in AS4 format [i.6].

Other mappings can be provided by future versions of the present document or by other parties.

In clause 4.3, all XML elements are given for information only. In case of conflict with the XML Schema file referenced to, clause A.1 takes precedence.

4.2 IETF RFC 5322 format

Specification for the **mapping of ERDS metadata** in an IETF RFC 5322 [i.6] format shall be as specified in ETSI EN 319 532-3 [9].

4.3 XML format for use in AS4 binding

4.3.1 Introduction

This clause defines an XML format for the ERDS relay meta-data as defined in ETSI EN 319 522-2 [1], clause 6, which is to be included in the AS4 message that is exchanged between ERDSs. Although its primary use is in the AS4 bindings it may also be used in other bindings.

4.3.2 Namespaces used

Table 1 shows the URIs corresponding to the namespaces and the prefixes associated to them in the present document.

Table 1: Namespaces URIs and prefixes

Namespace's URI	Namespace's prefix
http://uri.etsi.org/19522/v1#	erds
http://www.w3.org/2001/XMLSchema	xs
http://www.w3.org/2000/09/xmldsig#	ds
urn:oasis:names:tc:SAML:2.0:assertion	saml

Below follows a copy of the `xs:schema` element of the XML Schema file whose location is detailed in clause A.1 and that defines the namespace whose URI is <http://uri.etsi.org/19522/v1#>:

```
<xs:schema targetNamespace="http://uri.etsi.org/19522/v1#"
xmlns:ds="http://www.w3.org/2000/09/xmldsig#" xmlns:xs="http://www.w3.org/2001/XMLSchema"
xmlns="http://uri.etsi.org/19522/v1#" xmlns:saml="urn:oasis:names:tc:SAML:2.0:assertion">

  <xs:import namespace="http://www.w3.org/XML/1998/namespace"
schemaLocation="http://www.w3.org/2001/xml.xsd"/>

  <xs:import namespace="http://www.w3.org/2000/09/xmldsig#"
schemaLocation="http://www.w3.org/TR/2002/REC-xmldsig-core-20020212/xmldsig-core-schema.xsd"/>

  <xs:import namespace="urn:oasis:names:tc:SAML:2.0:assertion" schemaLocation="http://docs.oasis-
open.org/security/saml/v2.0/saml-schema-assertion-2.0.xsd"/>
```

4.3.3 Auxiliary elements

4.3.3.1 Introduction

The present clause provides details of a number of auxiliary types and elements used in throughout the XML Schema file whose location is detailed in clause A.1.

4.3.3.2 URI related types

The present clause defines a number of types whose instances' values are URIs.

These types element shall be defined as in XML Schema file whose location is detailed in clause A.1 and is copied below for information:

```
<!-- targetNamespace="http://uri.etsi.org/19522/v1#" -->

<xs:simpleType name="NonEmptyURIType">
  <xs:restriction base="xs:anyURI">
    <xs:minLength value="1"/>
  </xs:restriction>
</xs:simpleType>
```



```

<xs:complexType name="NonEmptyAttributedURIType">
  <xs:simpleContent>
    <xs:extension base="NonEmptyURIType">
      <xs:attribute ref="xml:lang" use="optional"/>
      <xs:attribute name="scheme" type="xs:string" use="optional"/>
    </xs:extension>
  </xs:simpleContent>
</xs:complexType>

<xs:complexType name="NonEmptyMultiLangURIType">
  <xs:simpleContent>
    <xs:extension base="NonEmptyURIType">
      <xs:attribute ref="xml:lang" use="required"/>
    </xs:extension>
  </xs:simpleContent>
</xs:complexType>

<xs:complexType name="NonEmptyMultiLangURIListType">
  <xs:sequence>
    <xs:element name="URI" type="NonEmptyMultiLangURIType maxOccurs="unbounded" "/>
  </xs:sequence>
</xs:complexType>

```

Instances of `NonEmptyURIType` type shall have a non-empty URI as value.

Instances of `NonEmptyAttributedURIType` shall have a non-empty URI as value. The `xml:lang` attribute shall identify a language using the language code as specified in IETF RFC 5646 [6]. The `scheme` attribute shall indicate the scheme for the URI value of the element.

Instances of `NonEmptyMultiLangURIType` shall have a non-empty URI as value. The `xml:lang` attribute shall identify a language using the language code as specified in IETF RFC 5646 [6].

4.3.3.3 String related types

The present clause defines a number of types whose instances' values are strings.

These types element shall be defined as in XML Schema file whose location is detailed in clause A.1 and is copied below for information:

```

<!-- targetNamespace="http://uri.etsi.org/19522/v1#" -->

<xs:simpleType name="NonEmptyStringType">
  <xs:restriction base="xs:string">
    <xs:minLength value="1"/>
  </xs:restriction>
</xs:simpleType>

<xs:complexType name="AttributedNonEmptyStringType">
  <xs:simpleContent>
    <xs:extension base="NonEmptyStringType">
      <xs:attribute name="type" type="NonEmptyStringType" use="required"/>
    </xs:extension>
  </xs:simpleContent>
</xs:complexType>

```

Instances of `NonEmptyStringType` type shall have a non-empty string as value.

Instances of `NonEmptyAttributedStringType` type shall have a non-empty string as value. The `type` attribute shall indicate the type of the corresponding string value.

4.3.3.4 Container for extensibility

The present clause defines the `Any` element that may have any content.

The present clause also defines the `AnyType` type whose instances may have any content.

They are specified for serving as placeholders for contents that are not specified in the present document.

This `Any` element shall be defined as in XML Schema file whose location is detailed in clause A.1 and is copied below for information:

```
<!-- targetNamespace="http://uri.etsi.org/19522/v1#" -->
<xs:element name="Any" type="AnyType"/>
<xs:complexType name="AnyType" mixed="true">
  <xs:sequence minOccurs="0" maxOccurs="unbounded">
    <xs:any namespace="##any" processContents="lax"/>
  </xs:sequence>
  <xs:anyAttribute namespace="##any"/>
</xs:complexType>
```

4.3.3.5 RelayMetadata root element

The root element of the XML document containing the ERDS meta-data shall be the `RelayMetadata` element.

This element shall be defined as in XML Schema file whose location is detailed in clause A.1 and is copied below for information:

```
<!-- targetNamespace="http://uri.etsi.org/19522/v1#" -->
<xs:element name="RelayMetadata" type="RelayMetadataType"/>
<xs:complexType name="RelayMetadataType">
  <xs:sequence>
    <xs:element ref="MessageIdentifier"/>
    <xs:element name="ERDMessageType" type="ERDMessageTypeType"/>
    <xs:element minOccurs="0" name="InReplyTo" type="MessageIdentifierType"/>
    <xs:element minOccurs="0" name="RelayTime" type="xs:dateTime"/>
    <xs:element minOccurs="0" name="ExpirationTime" type="xs:dateTime"/>
    <xs:element minOccurs="0" name="ScheduledDeliveryTime" type="xs:dateTime"/>
    <xs:element name="SenderId" type="EntityIdentifierType"/>
    <xs:element minOccurs="0" name="ReplyTo" type="EntityIdentifierType"/>
    <xs:element name="RecipientId" type="EntityIdentifierType"/>
    <xs:element ref="UserContentInfo"/>
    <xs:element name="RequiredAssuranceLevel" type="AssuranceLevelDetailsType" minOccurs="0"/>
    <xs:element name="ApplicablePolicy" minOccurs="0" type="ERDSPolicyIDType"/>
    <xs:element name="RequestedConsignmentMode" minOccurs="0" type="ConsignmentModeType"/>
    <xs:element minOccurs="0" ref="Extensions"/>
    <xs:element minOccurs="0" ref="ds:Signature"/>
  </xs:sequence>
  <xs:attribute name="version" use="required">
    <xs:simpleType>
      <xs:restriction base="xs:string"/>
    </xs:simpleType>
  </xs:attribute>
</xs:complexType>
```

Meta-data documents shall have "EN319522v1.1.1" as value for `version` attribute.

Attribute `version` shall implement the semantics specified in clause 6.2.1 of ETSI EN 319 522-2 [1].

Clauses from 4.3.4 to 4.3.18 provide XML Schema definitions and requirements on its components.

4.3.4 MessageIdentifier element

The `MessageIdentifier` element shall have the semantics of component MD11 as specified in clause 6.2.11 of ETSI EN 319 522-2 [1].

This element shall be defined as in XML Schema file whose location is detailed in clause A.1 and is copied below for information:

```
<!-- targetNamespace="http://uri.etsi.org/19522/v1#" -->
<xs:element name="MessageIdentifier" type="MessageIdentifierType"/>
<xs:simpleType name="MessageIdentifierType">
  <xs:restriction base="NonEmptyStringType"/>
</xs:simpleType>
```

4.3.5 ERDMessageType element

The `ERDMessageType` element shall have the semantics of component MD13 as specified in clause 6.2.13 of ETSI EN 319 522-2 [1].

The type of this element shall be defined as in XML Schema file whose location is detailed in clause A.1 and is copied below for information. It enumerates the ERD message types as defined in table 1 in clause 4 of ETSI EN 319 522-2 [1]:

```
<!-- targetNamespace="http://uri.etsi.org/19522/v1#" -->
<xs:simpleType name="ERDSMessageTypeType">
  <xs:restriction base="xs:anyURI">
    <xs:enumeration value="http://uri.etsi.org/19522/v1#/ERDMessageType/dispatch"/>
    <xs:enumeration value="http://uri.etsi.org/19522/v1#/ERDMessageType/receipt"/>
    <xs:enumeration value="http://uri.etsi.org/19522/v1#/ERDMessageType/serviceInfo"/>
    <xs:enumeration value="http://uri.etsi.org/19522/v1#/ERDMessageType/payload"/>
  </xs:restriction>
</xs:simpleType>
```

4.3.6 InReplyTo element

The optional `InReplyTo` element shall have the semantics of component MD12 as specified in clause 6.2.12 of ETSI EN 319 522-2 [1].

The type of this element shall be a message identifier as defined by the `MessageIdentifierType` type definition in XML Schema file whose location is detailed in clause A.1 and is copied in clause 4.3.4 for information.

4.3.7 RelayTime element

The optional `RelayTime` element shall have the semantics of component MD02 as specified in clause 6.2.2 of ETSI EN 319 522-2 [1]. The 'Z' indicator for UTC may be used.

4.3.8 ExpirationTime element

The optional `ExpirationTime` element shall have the semantics of component MD03 as specified in clause 6.2.3 of ETSI EN 319 522-2 [1]. The 'Z' indicator for UTC may be used.

4.3.9 ScheduledDeliveryTime element

The optional `ScheduledDeliveryTime` element shall have the semantics of component MD07 as specified in clause 6.2.7 of ETSI EN 319 522-2 [1]. The 'Z' indicator for UTC may be used.

4.3.10 SenderId element

The `SenderId` element shall have the semantics of component MD08 as specified in clause 6.2.8 of ETSI EN 319 522-2 [1].

The type of this element shall be defined as in XML Schema file whose location is detailed in clause A.1 and is copied below for information:

```
<!-- targetNamespace="http://uri.etsi.org/19522/v1#" -->
<xs:complexType name="EntityIdentifierType">
  <xs:simpleContent>
    <xs:extension base="NonEmptyStringType">
      <xs:attribute name="IdentifierSchemeName" type="NonEmptyStringType" use="required"/>
    </xs:extension>
  </xs:simpleContent>
</xs:complexType>
```

The content of this element shall contain the identifier of the sender. The attribute `IdentifierSchemeName` shall contain the identifier of the naming scheme for assigning identifiers to users.

4.3.11 ReplyTo element

The optional `ReplyTo` element shall have the semantics of component MD09 as specified in clause 6.2.9 of ETSI EN 319 522-2 [1].

The type of this element shall be the identifier of the user as defined by the `EntityIdentifierType` type definition in XML Schema file whose location is detailed in clause A.1 and which is copied in the previous clause for information.

4.3.12 RecipientId element

The optional `RecipientId` element shall have the semantics of component MD10 as specified in clause 6.2.10 of ETSI EN 319 522-2 [1].

The type of this element shall be the identifier of the user as defined by the `EntityIdentifierType` type definition in XML Schema file whose location is detailed in clause A.1 and which is copied in clause 4.3.10 for information.

4.3.13 UserContentInfo element

The `UserContentInfo` element shall have the semantics of component MD14 as specified in clause 6.2.14 of ETSI EN 319 522-2 [1].

This element shall be defined as in XML Schema file whose location is detailed in clause A.1 and is copied below for information:

```
<!-- targetNamespace="http://uri.etsi.org/19522/v1#" -->
  <xs:element name="UserContentInfo" type="UserContentInfoType"/>
  <xs:complexType name="UserContentInfoType">
    <xs:sequence>
      <xs:element name="AppLayerIdentifier" type="xs:string" minOccurs="0"/>
      <xs:element name="ComposingParts" type="xs:int" minOccurs="0"/>
      <xs:element ref="PartsInfo"/>
    </xs:sequence>
  </xs:complexType>
  <xs:element name="PartsInfo" type="PartsInfoType"/>
  <xs:complexType name="PartsInfoType">
    <xs:sequence maxOccurs="unbounded">
      <xs:element ref="PartInfo"/>
    </xs:sequence>
  </xs:complexType>
  <xs:element name="PartInfo" type="PartInfoType"/>
  <xs:complexType name="PartInfoType">
    <xs:sequence>
      <xs:element name="Identifier" type="xs:string"/>
      <xs:element name="ContentType" type="xs:string"/>
      <xs:element ref="ds:DigestMethod" minOccurs="0"/>
      <xs:element ref="ds:DigestValue" minOccurs="0"/>
    </xs:sequence>
  </xs:complexType>
```

If included in the meta-data document the `AppLayerIdentifier` child shall contain a string indicating the application layer identifier assigned to the user content.

When used in the meta-data document the `ComposingParts` child shall contain an integer value indicating the number of parts of the user content.

The `PartsInfo` child shall contain one or more `PartInfo` children each one containing detailed information of one of the parts of the user content.

`Identifier` child element of `PartInfo` shall contain the identifier of the corresponding part of the user content.

ContentType child element of PartInfo shall indicate the type of content of the corresponding part of the user content.

Child element ds:DigestMethod of PartInfo may be used to indicate the algorithm used for computing the digest value of the corresponding part of the user content.

Child element ds:DigestValue of PartInfo may be used to include the base-64 encoded digest value of the corresponding part of the user content as computed using the digest algorithm indicated in the aforementioned ds:DigestMethod child element.

NOTE: When using the AS4 binding to exchange ERD messages between ERDS as defined in ETSI EN 319 522-4-1 [i.12] the digest algorithm and value are already included in the message header and there is no need to include these again the meta-data document.

4.3.14 RequiredAssuranceLevel element

The optional RequiredAssuranceLevel element shall have the semantics of component MD04 as specified in clause 6.2.4 of ETSI EN 319 522-2 [1].

The type of this element shall be defined as in XML Schema file whose location is detailed in clause A.1 and is copied below for information:

```
<!-- targetNamespace="http://uri.etsi.org/19522/v1#" -->
<xs:complexType name="AssuranceLevelsDetailsType">
  <xs:choice>
    <xs:sequence>
      <xs:element name="GlobalAssuranceLevel" type="AssuranceLevelDetailsType"/>
      <xs:element ref="AuthenticationDetails" />
    </xs:sequence>
    <xs:sequence>
      <xs:element ref="AuthenticationDetsAndAssuranceLevel" />
      <xs:element name="IdentityProofAssuranceLevel" type="AssuranceLevelDetailsType"/>
      <xs:element name="FederationAssuranceLevel" type="AssuranceLevelDetailsType" minOccurs="0"/>
    </xs:sequence>
  </xs:choice>
</xs:complexType>

<xs:complexType name="AssuranceLevelDetailsType">
  <xs:sequence>
    <xs:element name="AssuranceLevel" type="xs:anyURI"/>
    <xs:element name="PolicyID" type="xs:anyURI" minOccurs="0"/>
    <xs:element name="PolicyIDDetails" type="xs:string" minOccurs="0"/>
    <xs:element name="PolicyIDDetailsResources" type="NonEmptyMultiLangURLListType"
minOccurs="0"/>
  </xs:sequence>
</xs:complexType>

<xs:element name="AuthenticationDetails" type="AuthenticationDetailsType"/>
<xs:complexType name="AuthenticationDetailsType">
  <xs:choice>
    <xs:element ref="saml:Assertion"/>
    <xs:element name="OAuth2" type="AnyType" />
    <xs:sequence>
      <xs:element name="AuthenticationTime" type="xs:dateTime"/>
      <xs:element name="AuthenticationMethod" type="xs:anyURI"/>
    </xs:sequence>
    <xs:element name="other" type="AnyType"/>
  </xs:choice>
</xs:complexType>

<xs:element name="AuthenticationDetsAndAssuranceLevel"
type="AuthenticationDetsAndAssuranceLevelType"/>

<xs:complexType name="AuthenticationDetsAndAssuranceLevelType">
  <xs:sequence>
    <xs:element name="AssuranceLevel" type="AssuranceLevelDetailsType"/>
    <xs:element ref="AuthenticationDetails" minOccurs="0"/>
  </xs:sequence>
</xs:complexType>
```

Each instance of `AssuranceLevelDetailsType` type shall contain detailed information of a certain assurance level.

Instances of `AssuranceLevelDetailsType` type may support schemes that define separated assurance levels for authentication process, identity proof processes, and an assertion protocol in case there is a federation for communicating authentication and identity information.

EXAMPLE 1: The Commission Implementing Regulation (EU) 2015/1502 [i.1] specifies three assurance levels for identity proof and authentication processes. Each one would require one instance of `AssuranceLevelDetailsType` type.

EXAMPLE 2: NIST Special Publications 800-63 [i.2], 800-63-A [i.3], 800-63-B [i.4] and 800-63-C [i.5] providing guidelines to federal agencies for implementing digital identification and authentication also provide means for managing these three different assurance levels if required. Each one would require one instance of `AssuranceLevelDetailsType` type.

One instance of `AssuranceLevelDetailsType` type may also support schemes that define a unique global assurance level jointly assigned to the identification proof and authentication processes.

The `AssuranceLevel` child element of instances of `AssuranceLevelDetailsType` shall indicate the value of an assurance level.

The `PolicyID` child element of instances of `AssuranceLevelDetailsType` shall identify the policy that defined the different assurance levels.

The `PolicyIDDetails` child element of instances of `AssuranceLevelDetailsType` shall contain relevant textual details of the policy that defined the different assurance levels.

The `PolicyIDDetailsResources` child element of instances of `AssuranceLevelDetailsType` shall contain a list of URIs pointing to resources providing details of the policy that defined the different assurance levels, each one in a certain language. The `xml:lang` attribute of each URI child element shall indicate the language used in the resource pointed by this element.

Each instance of `AssuranceLevelsDetailsType` shall convey either:

- a global assurance level jointly assigned to the identification proof and authentication processes, supported by the `GlobalAssuranceLevel` and `AuthenticationDetails` children elements, or
- separated information related to the assurance levels of identification proof process, authentication process and the assertion protocols in federated environments, supported by the sequence of `AuthenticationDetsAndAssuranceLevel`, `IdentityProofAssuranceLevel`, and `FederationAssuranceLevel` children elements.

`GlobalAssuranceLevel` child element of an instance of `AssuranceLevelsDetailsType` shall contain the information of a unique global assurance level jointly assigned to the identification proof and authentication processes.

One instance of `AuthenticationDetailsType` type (as the `AuthenticationDetails` child element of an instance of `AssuranceLevelsDetailsType`) shall contain details of one authentication process within either a `saml:Assertion` element or the sequence formed by `AuthenticationTime` and `AuthenticationMethod` children elements.

The `saml:Assertion` element shall contain a SAML assertion as specified in SAML V2.0 [5].

The `OAuth2` element shall contain an OAuth2 token. This token may also be embedded within a SAML2 assertion as specified in IETF RFC 7522 [i.8].

The `Other` element is a placeholder for incorporating tokens different than the ones contained in the other elements.

The `AuthenticationTime` child element shall indicate the time when the authentication process was conducted. The `AuthenticationMethod` child element shall identify the authentication method using an URI.

`AuthenticationDetsAndAssuranceLevel` child element shall include the details of the assurance level of the conducted authentication process within its `AssuranceLevel` child element. It may also include all the details corresponding to the conducted authentication method within its `AuthenticationDetails` child element.

`IdentityProofAssuranceLevels` child element shall include the details of the assurance level of the conducted identity proof process.

`FederationAssuranceLevels` child element shall include the details of the assurance level of the assertion protocol implemented in the federation.

4.3.15 ApplicablePolicy element

The optional `ApplicablePolicy` element shall have the semantics of component MD05 as specified in clause 6.2.5 of ETSI EN 319 522-2 [1].

The type of this element shall be defined as in XML Schema file whose location is detailed in clause A.1 and is copied below for information:

```
<!-- targetNamespace="http://uri.etsi.org/19522/v1#" -->
<xs:complexType name="ERDSPolicyIDType">
  </xs:annotation>
  <xs:sequence>
    <xs:element name="PolicyID" type="xs:anyURI" maxOccurs="unbounded"/>
  </xs:sequence>
</xs:complexType>
```

`ApplicablePolicy` shall have a URI reference as value, which shall identify one policy. If the policy is identified by an OID, the URI reference shall have a URN as value. The value of this URN shall be compliant with IETF RFC 3061 [3].

4.3.16 RequestedConsignmentMode element

The optional `RequestedConsignment` element shall have the semantics of component MD06 as specified in clause 6.2.6 of ETSI EN 319 522-2 [1].

The type of this element shall be defined as in XML Schema file whose location is detailed in clause A.1 and is copied below for information. It enumerates the consignment modes as defined in clause 6.2.6 of ETSI EN 319 522-2 [1]:

```
<!-- targetNamespace="http://uri.etsi.org/19522/v1#" -->
<xs:simpleType name="ConsignmentModeType">
  <xs:restriction base="xs:anyURI">
    <xs:enumeration value="http://uri.etsi.org/19522/v1#/consignment/basic"/>
    <xs:enumeration value="http://uri.etsi.org/19522/v1#/consignment/consent"/>
    <xs:enumeration value="http://uri.etsi.org/19522/v1#/consignment/signed"/>
    <xs:enumeration value="http://uri.etsi.org/19522/v1#/consignment/other"/>
  </xs:restriction>
</xs:simpleType>
```

4.3.17 Extensions element

The optional `Extensions` element shall have the semantics of component MD15 as specified in clause 6.2.15 of ETSI EN 319 522-2 [1].

This element shall be defined as in XML Schema file whose location is detailed in clause A.1 and is copied below for information:

```
<!-- targetNamespace="http://uri.etsi.org/19522/v1#" -->
<xs:element name="Extensions" type="ExtensionsListType"/>
<xs:complexType name="ExtensionsListType">
  <xs:sequence maxOccurs="unbounded">
    <xs:element ref="Extension"/>
  </xs:sequence>
</xs:complexType>
```

```

<xs:element name="Extension" type="ExtensionType"/>
<xs:complexType name="ExtensionType">
  <xs:complexContent>
    <xs:extension base="AnyType">
      <xs:attribute name="isCritical" type="xs:boolean" use="optional"/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>

```

Each `Extension` child element shall contain one component whose content model is not specified within the present document.

The `isCritical` attribute shall indicate whether the extension is critical or non-critical. If this attribute is absent, then the extension shall be designated as non-critical.

4.3.18 ds:Signature element

The optional `ds:Signature` element may be used to include the enveloped signature in the meta-data document.

NOTE: When the meta-data document is exchanged using the AS4 binding as specified in ETSI EN 319 522-4-1 [i.12] the signature of the meta-data is included in the message header and this element should not be used.

5 Evidence and identification formats

5.1 Introduction

The present clause defines an XML format for ERDS evidence components identified in ETSI EN 319 522-2 [1], clause 8.

ERDS can generate PDF-formatted ERDS evidences. This format, although valid, is thought more for final human usage rather than in situations where interoperability has to be addressed or automatic processes have to take some decision based on ERDS evidence content.

XML format is better suited for these last cases, where the automatic processing of the evidence content prevails over its immediate human interpretation. For the aforementioned reasons, the detailed specification of PDF evidence format is out of scope of the present document.

In clause 5.2, all XML elements are given for information only. In case of conflict with the XML Schema file whose location is detailed in clause A.1, it is the Schema file which takes precedence.

5.2 XML format

5.2.1 Namespaces used

The URIs corresponding to the namespaces and the prefixes associated to them in the XML Schema excerpts shown in this clause shall be the ones specified in Table 1 of clause 4.3.1.

5.2.2 Evidence format

5.2.2.1 Introduction

The present clause specifies a XML format for the Evidences generated by an ERDS.

5.2.2.2 Auxiliary elements

5.2.2.2.1 Introduction

The same auxiliary types defined in clause 4.3.3 are used in the following definitions.

5.2.2.3 Evidence root element

The root element of evidence shall be the `Evidence` element.

This element shall be defined as in XML Schema file whose location is detailed in clause A.1 and is copied below for information:

```
<!-- targetNamespace="http://uri.etsi.org/19522/v1#" -->
<xs:element name="Evidence" type="EvidenceType"/>
<xs:complexType name="EvidenceType">
  <xs:sequence>
    <xs:element ref="EvidenceIdentifier"/>
    <xs:element ref="ERDSEventId"/>
    <xs:group ref="Components"/>
  </xs:sequence>
  <xs:attribute name="version" type="xs:string" use="required"/>
  <xs:attribute name="Id" type="xs:ID" use="optional"/>
</xs:complexType>
```

Evidences shall have "EN319522v1.1.1" as value for `version` attribute.

Attribute `version` shall implement the semantics specified in clause 8.2.2 of ETSI EN 319 522-2 [1].

Attribute `Id` shall be used to reference the `Evidence` element.

Clauses 5.2.2.4 to 5.2.2.25 provide XML Schema definitions and requirements on its components.

5.2.2.4 EvidenceIdentifier element

The content of this element shall have the semantics specified in clause 8.2.1 of ETSI EN 319 522-2 [1]:

```
<!-- targetNamespace="http://uri.etsi.org/19522/v1#" -->
<xs:element name="EvidenceIdentifier" type="xs:string" />
```

5.2.2.5 ERDSEventId element

The content of this element shall have the semantics specified in clause 8.2.3 of ETSI EN 319 522-2 [1].

The content of this element shall be one of the URI values listed in Table 2.

This element shall be defined as in XML Schema file whose location is detailed in clause A.1 and is copied below for information.

```
<!-- targetNamespace="http://uri.etsi.org/19522/v1#" -->
<xs:element name="ERDSEventId" type="NonEmptyURIType">
</xs:element>
```

URI values corresponding to each of the events specified in clause 6.2 of ETSI EN 319 522-2 [1] shall be as specified in Table 2.

Table 2: URI values identifying the ERDS events triggering the generation of ERDS evidences

URI value	Event identified
http://uri.etsi.org/19522/Event/SubmissionAcceptance	SubmissionAcceptance
http://uri.etsi.org/19522/Event/SubmissionRejection	SubmissionRejection
http://uri.etsi.org/19522/Event/RelayAcceptance	RelayAcceptance
http://uri.etsi.org/19522/Event/RelayRejection	RelayRejection
http://uri.etsi.org/19522/Event/RelayFailure	RelayFailure
http://uri.etsi.org/19522/Event/NotificationForAcceptance	NotificationForAcceptance
http://uri.etsi.org/19522/Event/NotificationForAcceptanceFailure	NotificationForAcceptanceFailure
http://uri.etsi.org/19522/Event/ConsignmentAcceptance	ConsignmentAcceptance
http://uri.etsi.org/19522/Event/ConsignmentRejection	ConsignmentRejection
http://uri.etsi.org/19522/Event/AcceptanceRejectionExpiry	AcceptanceRejectionExpiry
http://uri.etsi.org/19522/Event/ContentConsignment	ContentConsignment
http://uri.etsi.org/19522/Event/ContentConsignmentFailure	ContentConsignmentFailure
http://uri.etsi.org/19522/Event/ConsignmentNotification	ConsignmentNotification
http://uri.etsi.org/19522/Event/ConsignmentNotificationFailure	ConsignmentNotificationFailure
http://uri.etsi.org/19522/Event/ContentHandover	ContentHandover
http://uri.etsi.org/19522/Event/ContentHandoverFailure	ContentHandoverFailure
http://uri.etsi.org/19522/Event/RelayToNonERDS	RelayToNonERDS
http://uri.etsi.org/19522/Event/RelayToNonERDSFailure	RelayToNonERDSFailure
http://uri.etsi.org/19522/Event/ReceivedFromNonERDS	ReceivedFromNonERDS

5.2.2.6 Components elements group

Below follows a copy of a part of the XML Schema file that defines a group of elements, whose components are specified in clauses 5.2.2.7 to 5.2.2.25:

```
<!-- targetNamespace="http://uri.etsi.org/19522/v1#" -->

<xs:group name="Components">
  <xs:sequence>
    <xs:element ref="EventReasons" minOccurs="0"/>
    <xs:element name="EventTime" type="xs:dateTime"/>
    <xs:element ref="EvidenceIssuerPolicyID" minOccurs="0"/>
    <xs:element ref="EvidenceIssuerDetails"/>
    <xs:element ref="SenderDetails"/>
    <xs:element ref="SenderDelegateDetails" minOccurs="0"/>
    <xs:element ref="RecipientDetails" maxOccurs="unbounded"/>
    <xs:element ref="RecipientsDelegateDetails" minOccurs="0" maxOccurs="unbounded"/>
    <xs:element ref="SubmissionTime" minOccurs="0"/>
    <xs:element name="EvidenceRefersToRecipient" type="xs:integer" minOccurs="0"/>
    <xs:element name="MessageIdentifier" type="xs:string" minOccurs="0"/>
    <xs:element ref="UserContentInfo" minOccurs="0"/>
    <xs:element name="ExternalSystem" type="xs:string" minOccurs="0"/>
    <xs:element ref="ExternalERDSDetails" minOccurs="0"/>
    <xs:element ref="TransactionLogInformation" minOccurs="0"/>
    <xs:element ref="Extensions" minOccurs="0"/>
    <xs:element ref="ds:Signature" minOccurs="0"/>
  </xs:sequence>
</xs:group>
```

5.2.2.7 EventReasons element

The EventReasons element shall have the semantics specified in clause 8.2.4 of ETSI EN 319 522-2 [1].

The EventReasons element shall identify, by means of an URI value, the reason or reasons that have caused the event that has triggered the generation of the evidence.

This element shall be defined as in XML Schema file whose location is detailed in clause A.1 and is copied below for information:

```
<!-- targetNamespace="http://uri.etsi.org/19522/v1#" -->

<xs:element name="EventReasons" type="EventReasonsType"/>
<xs:complexType name="EventReasonsType">
```

```

<xs:sequence>
  <xs:element ref="EventReason" maxOccurs="unbounded"/>
</xs:sequence>
</xs:complexType>

<xs:element name="EventReason" type="EventReasonType"/>
<xs:complexType name="EventReasonType">
  <xs:sequence>
    <xs:element name="Code" type="xs:anyURI"/>
    <xs:element name="Details" type="xs:string" minOccurs="0" maxOccurs="unbounded"/>
  </xs:sequence>
</xs:complexType>

```

Each EventReason child shall identify one of the reasons that caused the evidence's triggering event.

EventReason's Code child shall have a URI value.

Code child element should have values as defined in Table 3. Code child element may have values different than those that are listed in Table 4 to respond to specific requirements of the ERDS.

EventReason's Details child shall contain textual information providing further information on the reason.

Table 3: URI values identifying reasons causing events occurrences

URI values
http://uri.etsi.org/19522/EventReason/MessageAccepted
http://uri.etsi.org/19522/EventReason/InvalidMessageFormat
http://uri.etsi.org/19522/EventReason/MalwareFound
http://uri.etsi.org/19522/EventReason/SenderSigningCertExpiredOrRevoked
http://uri.etsi.org/19522/EventReason/S_ERDS_PolicyViolation
http://uri.etsi.org/19522/EventReason/S_ERDS_MessageSuccessfullyRelayed
http://uri.etsi.org/19522/EventReason/R_ERDS_MessageRejected
http://uri.etsi.org/19522/EventReason/R_ERDS_MessageRejectedForMalware
http://uri.etsi.org/19522/EventReason/R_ERDS_MessageRejectedForInvalidSignature
http://uri.etsi.org/19522/EventReason/R_ERDS_MessageRejectedForInvalidCertificate
http://uri.etsi.org/19522/EventReason/R_ERDS_PolicyViolation
http://uri.etsi.org/19522/EventReason/R_ERDS_Malfunction
http://uri.etsi.org/19522/EventReason/R_ERDS_NotIdentified
http://uri.etsi.org/19522/EventReason/R_ERDS_Unreachable
http://uri.etsi.org/19522/EventReason/UnknownRecipient
http://uri.etsi.org/19522/EventReason/NotificationForAcceptanceSent
http://uri.etsi.org/19522/EventReason/SubsequentNotificationForAcceptanceSent
http://uri.etsi.org/19522/EventReason/NotificationForAcceptanceError
http://uri.etsi.org/19522/EventReason/SubsequentNotificationForAcceptanceError
http://uri.etsi.org/19522/EventReason/NotificationForAcceptanceMultipleError
http://uri.etsi.org/19522/EventReason/SubsequentNotificationForAcceptanceMultipleError
http://uri.etsi.org/19522/EventReason/MessageAcceptedByRecipient
http://uri.etsi.org/19522/EventReason/MessageRejectedByRecipient
http://uri.etsi.org/19522/EventReason/MessageNotAcceptedInTimeByRecipient
http://uri.etsi.org/19522/EventReason/MessageConsignedToRecipient
http://uri.etsi.org/19522/EventReason/MessageConsignedToDelegate
http://uri.etsi.org/19522/EventReason/S_ERDSP_ReceivedNoDeliveryInfoFromR_ERDSP
http://uri.etsi.org/19522/EventReason/MessageNotConsignedForQuota
http://uri.etsi.org/19522/EventReason/MessageNotConsignedForMalfunction
http://uri.etsi.org/19522/EventReason/MessageNotConsignedForUnallowedType
http://uri.etsi.org/19522/EventReason/MessageHandedOver
http://uri.etsi.org/19522/EventReason/MessageHandedOverToDelegate
http://uri.etsi.org/19522/EventReason/MessageNotHandedOverForUnallowedType
http://uri.etsi.org/19522/EventReason/MessageHandoverTimeout
http://uri.etsi.org/19522/EventReason/MessageRelayedToNonERDS
http://uri.etsi.org/19522/EventReason/ExternalSystemUnreachable
http://uri.etsi.org/19522/EventReason/MessageRejectedByExternalSystem
http://uri.etsi.org/19522/EventReason/MessageReceivedFromNonERDS
http://uri.etsi.org/19522/EventReason/Other

5.2.2.8 EventTime element

The `EventTime` element of the `Components` group shall have the semantics specified in clause 8.2.5 of ETSI EN 319 522-2 [1].

5.2.2.9 EvidenceIssuerPolicyID element

Each `PolicyID` child of `EvidenceIssuerPolicyID` element shall have the semantics specified in clause 8.2.7 of ETSI EN 319 522-2 [1].

This element shall be defined as in XML Schema file whose location is detailed in clause A.1 and is copied below for information:

```
<!-- targetNamespace="http://uri.etsi.org/19522/v1#" -->
  <xs:element name="EvidenceIssuerPolicyID" type="ERDSPolicyIDType"/>
```

`PolicyID` child shall have a URI reference as value, which shall identify one policy. If the policy is identified by an OID, the URI reference shall have a URN as value. The value of this URN shall be compliant with IETF RFC 3061 [3].

5.2.2.10 EntityDetailsType type

Instances of `EntityDetailsType` covers the common semantic of different entity component defined in ETSI EN 319 522-2 [1].

This type shall be defined as XML Schema file whose location is detailed in clause A.1 and is copied below for information:

```
<!-- targetNamespace="http://uri.etsi.org/19522/v1#" -->
<xs:complexType name="EntityDetailsType">
  <xs:sequence>
    <xs:element ref="Identity"/>
    <xs:element ref="CertificateDetails" minOccurs="0"/>
    <xs:element ref="Any" minOccurs="0"/>
  </xs:sequence>
</xs:complexType>
```

The `Any` element is a placeholder for extending the definition of this type.

Clauses 5.2.2.11 and 5.2.2.12 provide details of the different components.

5.2.2.11 Identity element

The `Identity` element shall be defined as in XML Schema file whose location is detailed in clause A.1 and is copied below for information:

```
<!-- targetNamespace="http://uri.etsi.org/19522/v1#" -->
  <xs:element name="Identity" type="IdentityAttributesType" />
  <xs:complexType name="IdentityAttributesType">
    <xs:sequence>
      <xs:element ref="saml:Attribute" maxOccurs="unbounded" />
    </xs:sequence>
  </xs:complexType>
```

The `Identity` element shall contain a sequence of `saml:Attribute` elements. Each `saml:Attribute` element shall contain the value of one identity attribute.

The `Identity` element may contain one or more `saml:Attribute` elements each one with a value representing one postal address.

EXAMPLE 1: For natural persons the `saml:Attribute` element specified in "eIDAS SAML Attribute profile" [4] whose `Name` attribute value is "1010".

EXAMPLE 2: For legal persons the `saml:Attribute` element specified in "eIDAS SAML Attribute profile" [4] whose `Name` attribute value is
`"http://eidass.europa.eu/attributes/legalperson/LegalPersonAddress"`.

EXAMPLE 3: The ISA Core Vocabulary `cva:Cvaddress` element.

The sequence of `saml:Attribute` elements within XML evidences issued by ERDS shall be conformant with the identity attributes specified in "eIDAS SAML Attribute profile" [4].

The optional `saml:Attribute` elements within XML evidences issued by ERDS used for identifying natural and legal persons, as well as their corresponding postal addresses shall be the ones specified in "eIDAS SAML Attribute profile" [4].

5.2.2.12 CertificateDetailsType type

Instances of `CertificateDetailsType` type shall contain the details of the certificate of a certain entity.

This type shall be defined as in XML Schema file whose location is detailed in clause A.1 and is copied below for information:

```
<!-- targetNamespace="http://uri.etsi.org/19522/v1#" -->

<xs:element name="CertificateDetails" type="CertificateDetailsType"/>
<xs:complexType name="CertificateDetailsType">
  <xs:choice maxOccurs="3">
    <xs:element name="X509Certificate" type="xs:base64Binary"/>
    <xs:element name="CertID" type="CertIDTypeV2"/>
    <xs:element ref="CertIDAndSignature"/>
  </xs:choice>
</xs:complexType>

<xs:element name="CertIDAndSignature" type="CertIDAndSignatureType"/>
<xs:complexType name="CertIDAndSignatureType">
  <xs:sequence>
    <xs:element name="CertID" type="CertIDTypeV2"/>
    <xs:element ref="CertSignatureDetails" />
  </xs:sequence>
</xs:complexType>

<xs:complexType name="CertIDTypeV2">
<xs:sequence>
  <xs:element name="CertDigest" type="DigestAlgAndValueType"/>
  <xs:element name="IssuerSerialV2" type="xs:base64Binary" minOccurs="0"/>
</xs:sequence>
<xs:attribute name="URI" type="xs:anyURI" use="optional"/>
</xs:complexType>

<xs:complexType name="DigestAlgAndValueType">
  <xs:sequence>
    <xs:element ref="ds:DigestMethod"/>
    <xs:element ref="ds:DigestValue"/>
  </xs:sequence>
</xs:complexType>

<xs:element name="CertSignatureDetails" type="CertSignatureDetailsType"/>
<xs:complexType name="CertSignatureDetailsType">
  <xs:sequence>
    <xs:element ref="ds:SignatureMethod"/>
    <xs:element ref="ds:SignatureValue"/>
  </xs:sequence>
</xs:complexType>
```

The `X509Certificate` child shall contain the base-64 encoding of a DER-encoded X.509 certificate of the entity whose details are provided by the instance of `CertificateDetailType`.

The `CertID` child shall be an instance of `CertIDTypeV2` type and shall contain a reference to the X.509 certificate of the entity whose details are provided by the instance of `CertificateDetailsType`.

The child element `CertDigest` of an instance of `CertIDTypeV2` shall contain the digest of the referenced certificate.

`CertDigest`'s children elements satisfy the following requirements:

- 1) `ds:DigestMethod` element shall identify the digest algorithm; and
- 2) `ds:DigestValue` element shall contain the base-64 encoded value of the digest computed on the DER-encoded certificate.

The content of `IssuerSerialV2` element shall be the base-64 encoding of one DER-encoded instance of type `IssuerSerial` type defined in IETF RFC 5035 [7].

NOTE 1: The information in the `IssuerSerialV2` element is only a hint, that can help to identify the certificate whose digest matches the value present in the reference. But the binding information is the digest of the certificate.

The `URI` attribute shall provide an indication of where the referenced certificate can be found.

NOTE 2: It is intended that this attribute be used as a hint, as implementations can have alternative ways for retrieving the referenced certificate if it is not found at the referenced place.

The `CertIDAndSignature` child of `CertificateDetails` element shall contain an instance of `CertIDTypeV2` and the `CertSignatureDetails` child element, whose details are given below.

The `CertSignatureDetails` child of `CertIDAndSignature` element shall contain the details of the signature value of the certificate of the entity whose details are provided by the instance of `CertificateDetailType`.

The `ds:SignatureMethod` child of `CertSignatureDetails` element shall be an element as specified in clause 4.4.2 of "XML Signature Syntax and Processing, Version 1.1" [2]. It shall contain the identifier of the algorithm used for computing the signature of the certificate of the entity whose details are provided by the instance of `CertificateDetailType`.

The `ds:SignatureValue` child of `CertSignatureDetails` element shall be an element as specified in clause 4.4.3 of "XML Signature Syntax and Processing, Version 1.1" [2]. It shall contain the base-64 encoded signature value of the certificate of the entity whose details are provided by the instance of `CertificateDetailType`.

5.2.2.13 EvidenceIssuerDetails element

The `EvidenceIssuerDetails` element shall have the semantics specified in clause 8.2.8 of ETSI EN 319 522-2 [1].

The `EvidenceIssuerDetails` element shall be an instance of `EntityDetailsType` type where the values within all its components shall be values corresponding to the entity that has issued the evidence.

This element shall be defined as in XML Schema file whose location is detailed in clause A.1 and is copied below for information:

```
<!-- targetNamespace="http://uri.etsi.org/19522/v1#" -->
<xs:element name="EvidenceIssuerDetails" type="EntityDetailsType"/>
```

5.2.2.14 AssuranceLevelsDetailsType type

Instances of the `AssuranceLevelsDetailsType` type shall allow implementing the semantics corresponding to the details of the assurance levels of the identification validation and authentication processes carried out with users as specified in clauses 8.2.19 (for the sender), 8.2.20 (for the sender's delegate), 8.2.21 (for one recipient) and 8.2.22 (for one delegate of one or more recipients) of ETSI EN 319 522-2 [1].

This type shall be defined as in XML Schema file, which is also reported in clause 4.3.14 above for information.

5.2.2.15 UserDetailsType type

Instances of the `UserDetailsType` type shall contain one component that shall allow implementing the semantics corresponding to identity attributes of sender and recipient as specified in clauses 8.2.10 (for the sender), and 8.2.14 (for one recipient) of ETSI EN 319 522-2 [1].

Instances of the `UserDetailsType` type shall contain one component that shall allow implementing the semantics corresponding to identifiers of sender and recipient as specified in clauses 8.2.10 (for the sender), and 8.2.15 (for one recipient) of ETSI EN 319 522-2 [1].

Instances of the `UserDetailsType` type shall contain one component that shall allow implementing the semantics corresponding to the details of the assurance levels of the identification validation and authentication processes carried out with sender and recipient as specified in clauses 8.2.19 (for the sender), and 8.2.21 (for one recipient) of ETSI EN 319 522-2 [1].

This type shall be defined as in XML Schema file whose location is detailed in clause A.1 and is copied below for information:

```
<!-- targetNamespace="http://uri.etsi.org/19522/v1#" -->
<xs:complexType name="UserDetailsType">
  <xs:sequence>
    <xs:element ref="Identity" minOccurs="0" />
    <xs:element name="Identifier" type="EntityIdentifierType" minOccurs="0" />
    <xs:element name="AssuranceLevelsDetails" type="AssuranceLevelsDetailsType" minOccurs="0"/>
  </xs:sequence>
</xs:complexType>
```

Child element `Identity` shall contain the identity attributes of the user.

Child element `Identifier` shall contain the identifier of the user. Attribute `IdentifierSchemeName` of element `Identifier` child shall contain the identifier of the naming scheme for assigning identifiers to users.

Child element `AssuranceLevelsDetails` shall contain the details of the assurance levels of the identification validation and authentication processes carried out with the user.

5.2.2.16 `SenderDetails` element

The `SenderDetails` element shall contain one component that shall have the semantics corresponding to the identity attributes of the sender as specified in clause 8.2.10 of ETSI EN 319 522-2 [1].

The `SenderDetails` element shall also contain one component that shall have the semantics corresponding to the identifier of the sender as specified in clause 8.2.11 of ETSI EN 319 522-2 [1].

The `SenderDetails` element shall also contain one component that shall have the semantics corresponding to the details of the assurance levels of the identification validation and authentication processes carried out with the sender as specified in clause 8.2.19 of ETSI EN 319 522-2 [1].

This element shall be defined as in XML Schema file whose location is detailed in clause A.1 and is copied below for information:

```
<!-- targetNamespace="http://uri.etsi.org/19522/v1#" -->
<xs:element name="SenderDetails" type="UserDetailsType"/>
```

5.2.2.17 `SenderDelegateDetails` element

The `SenderDelegateDetails` element shall contain one component that shall have the semantics corresponding to the identity attributes of the sender's delegate as specified in clause 8.2.12 of ETSI EN 319 522-2 [1].

The `SenderDelegateDetails` element shall also contain one component that shall have the semantics corresponding to the identifier of the sender's delegate as specified in clause 8.2.13 of ETSI EN 319 522-2 [1].

The `SenderDelegateDetails` element shall also contain one component that shall have the semantics corresponding to the details of the assurance levels of the identification validation and authentication processes carried out with the sender's delegate as specified in clause 8.2.20 of ETSI EN 319 522-2 [1].

This element shall be defined as in XML Schema file whose location is detailed in clause A.1 and is copied below for information.

```
<!-- targetNamespace="http://uri.etsi.org/19522/v1#" -->
```

```
<xs:element name="SenderDelegateDetails" type="UserDetailsType"/>
```

Child element `Identity` shall contain the identity attributes of the delegate.

Child element `Identifier` shall contain the identifier of the delegate.

Child element `AssuranceLevelsDetails` shall contain the details of the assurance levels of the identification validation and authentication processes carried out with the delegate.

5.2.2.18 RecipientDetails element

The `RecipientDetails` element shall contain one component that shall have the semantics corresponding to the identity attributes of one recipient as specified in clause 8.2.14 of ETSI EN 319 522-2 [1].

The `RecipientDetails` element shall also contain one component that shall have the semantics corresponding to the identifier of one recipient as specified in clause 8.2.15 of ETSI EN 319 522-2 [1].

The `RecipientDetails` element shall also contain one component that shall have the semantics corresponding to the details of the assurance levels of the identification validation and authentication processes carried out with one recipient as specified in clause 8.2.21 of ETSI EN 319 522-2 [1].

This element shall be defined as in XML Schema file whose location is detailed in clause A.1 and is copied below for information.

```
<!-- targetNamespace="http://uri.etsi.org/19522/v1#" -->
  <xs:element name="RecipientDetails" type="UserDetailsType"/>
```

5.2.2.19 RecipientsDelegateDetails element

The `RecipientsDelegateDetails` element shall contain one component that shall have the semantics corresponding to the identity attributes of one delegate of one or more recipients as specified in clause 8.2.16 of ETSI EN 319 522-2 [1].

The `RecipientsDelegateDetails` element shall also contain one component that shall have the semantics corresponding to the identifier of one delegate of one or more recipients as specified in clause 8.2.17 of ETSI EN 319 522-2 [1].

The `RecipientsDelegateDetails` element shall also contain one component that shall have the semantics corresponding to the details of the assurance levels of the identification validation and authentication processes carried out with one delegate of one or more recipients as specified in clause 8.2.22 of ETSI EN 319 522-2 [1].

This element shall be defined as in XML Schema file whose location is detailed in clause A.1 and is copied below for information:

```
<!-- targetNamespace="http://uri.etsi.org/19522/v1#" -->
  <xs:element name="RecipientsDelegateDetails" type="RecipientsDelegateDetailsType"/>
  <xs:complexType name="RecipientsDelegateDetailsType">
    <xs:complexContent>
      <xs:extension base="UserDetailsType">
        <xs:sequence>
          <xs:element name="DelegatingRecipients" type="ListOfIntegers"/>
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <xs:simpleType name="ListOfIntegers">
    <xs:list itemType="xs:integer"/>
  </xs:simpleType>
```

Child element `Identity` shall contain the identity attributes of the delegate.

Child element `Identifier` shall contain the identifier of the delegate.

Child element `AssuranceLevelsDetails` shall contain the details of the assurance levels of the identification validation and authentication processes carried out with the delegate.

Child element `DelegatingRecipients` shall contain a sequence of integers. Each integer shall identify one of the recipients that have delegated into this delegate. For matching the integer values with the delegating recipients, the first `RecipientDetails` child element after `SenderDetails` within the evidence shall be assigned number 1. If

`DelegatingRecipients` element is absent, then the delegate shall act as delegated of all the recipients.

5.2.2.20 `SubmissionTime` element

The `SubmissionTime` element shall have the semantics specified in clause 8.2.25 of ETSI EN 319 522-2 [1].

This element shall be defined as in XML Schema file whose location is detailed in clause A.1 and is copied below for information:

```
<!-- targetNamespace="http://uri.etsi.org/19522/v1#" -->
<xs:element name="SubmissionTime" type="xs:dateTime"/>
```

5.2.2.21 `EvidenceRefersToRecipient` element

Each `EvidenceRefersToRecipient` element of the `Components` group shall have the semantics specified in clause 8.2.18 of ETSI EN 319 522-2 [1].

This element shall be defined as in XML Schema file whose location is detailed in clause A.1.

`EvidenceRefersToRecipient`'s integer value shall identify the recipient that the evidence refers to, among all the recipients whose details appear within the evidence. For matching the integer values with the delegating recipients, the first `RecipientDetails` child element after `SenderDetails` within the evidence shall be assigned number 1.

5.2.2.22 `MessageIdentifier` element

The `MessageIdentifier` element shall have the semantics specified in clause 8.2.23 of ETSI EN 319 522-2 [1].

This element shall be defined as in XML Schema file whose location is detailed in clause A.1 and is copied in clause 4.3.4 for information.

5.2.2.23 `UserContentInfo` element

The `UserContentInfo` element shall have the semantics specified in clause 8.2.24 of ETSI EN 319 522-2 [1].

This element shall be defined as in XML Schema file whose location is detailed in clause A.1 and is copied in clause 4.3.13 for information.

5.2.2.24 `ExternalSystem` element

The `ExternalSystem` element shall have the semantics specified in clause 8.2.26 of ETSI EN 319 522-2 [1].

This element shall be defined as in XML Schema file whose location is detailed in clause A.1 and is copied in clause 5.2.2.6 for information.

The `ExternalSystem` element shall have a string value, which shall describe the external system to which the evidence relates.

5.2.2.25 `ExternalERDSDetails` element

The `ExternalERDSDetails` element shall have the semantics specified in clause 8.2.27 of ETSI EN 319 522-2 [1].

The `ExternalERDSDetails` element shall be an instance of `EntityDetailsType` type where the values within all its components shall be values corresponding to the second ERDS involved in the event.

This element shall be defined as in XML Schema file whose location is detailed in clause A.1 and is copied below for information:

```
<!-- targetNamespace="http://uri.etsi.org/19522/v1#" -->
```

```
<xs:element name="ExternalERDSDetails" type="EntityDetailsType"/>
```

5.2.2.26 TransactionLogInformation element

The `TransactionLogInformation` element shall have the semantics specified in clause 8.2.6 of ETSI EN 319 522-2 [1].

This element shall be defined as in XML Schema file whose location is detailed in clause A.1 and is copied below for information:

```
<!-- targetNamespace="http://uri.etsi.org/19522/v1#" -->
<xs:element name="TransactionLogInformation" type="TransactionLogInformationType"/>
<xs:complexType name="TransactionLogInformationType">
  <xs:sequence>
    <xs:element ref="TransactionLog" maxOccurs="unbounded"/>
  </xs:sequence>
</xs:complexType>

<xs:element name="TransactionLog" type="AnyType"/>
```

Each `TransactionLog` child element shall contain one log record, whose format and contents are specific to the underlying transport protocol.

5.2.2.27 Extensions element

The `Extensions` element shall have the semantics specified in clause 8.2.28 of ETSI EN 319 522-2 [1].

This element shall be defined as in XML Schema file whose location is detailed in clause A.1 and is copied in clause 4.3.17 for information.

5.2.2.28 ds:Signature element

The `ds:Signature` element shall have the semantics specified in clause 8.2.9 of ETSI EN 319 522-2 [1].

The `ds:Signature` shall be present enveloped within the ERDS Evidence.

This digital signature should be a XAdES baseline signature as specified in ETSI EN 319 132-1 [i.7].

This digital signature may include the signed qualifying property `xades:SignaturePolicyIdentifier`, containing the explicit identifier of the signature policy governing the signing and validating processes.

Once the XAdES-B-B baseline signature has been generated, it should be augmented to a XAdES-B-T baseline signature by incorporation into the digital signature of the unsigned qualifying property `xades:SignatureTimeStamp`, containing a time-stamp token computed as specified in ETSI EN 319 132-1 [i.7].

The signing certificate of this digital signature shall meet the requirements specified in clause 7.2 of ETSI EN 319 522-2 [1].

6 Common Service Infrastructure (CSI) formats

6.1 Routing information

If the R-ERDS is not identified by the recipient identification (as described in ETSI EN 319 522-2 [1], clause 9.2), this information shall be retrieved from the Common Service Interface.

The retrieved information contains a `ServiceInformation` element as specified by clause 2.3.4.2 of SMP [8]. The `ServiceInformation` element contains a `ServiceEndpointList` containing information on ERDS RIs that may be used to reach the recipient for the application protocol identified. Each `ServiceEndpoint`, i.e. ERDS RI, is identified by a URI.

6.2 Trust information

Each ServiceEndpoint (i.e. ERDS RI) in the ServiceEndpointList defined in clause 6.1 contains the certificate that the ERDS RI uses for digital signatures.

Service digital identity and further TSL definitions are found in ETSI TS 119 612 [i.9]. Clause 7.2 of ETSI EN 319 522-4-3 [10] specifies use of an X.509 certificate as service digital identity of an ERDS.

6.3 Capability management

6.3.1 Recipient metadata (recipient capabilities)

The recipient metadata shall be those defined in OASIS Service Metadata Publisher (SMP Version 1.0 [8]).

6.3.2 ERDS metadata (ERDS capabilities)

This element shall be defined in the XML Schema file whose location is detailed in clause A.1 and is copied below for information:

```
<!-- targetNamespace="http://uri.etsi.org/19522/v1#" -->
<xs:element name="ERDSMetadata" type="ERDSMetadataType"/>
  <xs:complexType name="ERDSMetadataType">
    <xs:sequence>
      <xs:element name="ERDSId" type="EntityIdentifierType"/>
      <xs:element name="ERDSDomain" type="xs:string"/>
      <xs:element name="ERDSGoverningBody" type="xs:string"/>
      <xs:element name="ERDSProfileSupported" type="xs:anyURI"/>
      <xs:element name="ERDSMetadataRepository" type="xs:anyURI" minOccurs="0"/>
      <xs:element name="ERDSUQualifiedIndicator" type="xs:boolean" minOccurs="0"/>
      <xs:element name="ERDSTLSLocation" type="xs:anyURI" minOccurs="0"/>
      <xs:element name="ERDSRootCACertLocation" type="xs:anyURI" minOccurs="0"/>
      <xs:element name="ERDSExpiryDateAndTimeSupport" type="xs:boolean"/>
      <xs:element name="ERDSScheduledDeliverySupport" type="xs:boolean"/>
      <xs:element name="ERDSAssuranceLevelsSupported" type="AssuranceLevelDetailsType"
minOccurs="0"/>
      <xs:element name="ERDSPolicySupport" type="ERDSPolicyIDType" minOccurs="0"/>
      <xs:element name="ERDSSupportedConsignmentModes" type="ConsignmentModeType" minOccurs="0"/>
    </xs:sequence>
    <xs:attribute name="version" use="required"/>
  </xs:complexType>
```

Meta-data documents shall have "EN319522v1.1.1" as value for version attribute.

Attribute version shall implement the semantics of component MD01 as specified in clause 6.2.1 of ETSI EN 319 522-2 [1].

Below, the ERDS capability metadata defined above is specified as an extension to the OASIS Service Metadata Publishing (SMP) specification [8]. The extension should be added to the ServiceEndpointList or to the specific ServiceEndpoints. Note that according to SMP [8], extensions may be ignored. The capabilities described by the ERDS metadata are common to all ERDS RIs exposed by the ERDS. By defining this as an extension to SMP, the existing SMP ServiceMetadata definition does not need to be changed, and metadata about an ERDS can be located in SMP.

The SMP specification has a standard format for specification of extensions. The extension shall follow the pseudo-schema in clause 2.3.2.2 of SMP [8] concerning identification of the extension and the responsible agency. Clause 2.3.2.3 of SMP [8] describes the semantics of the individual fields (elements and attributes) of this pseudo-schema and the schema bdx-smp-201605.xsd copied into appendix B of SMP [8] provides the XML schema. The ERDS capability metadata shall be encoded in the xs:any part of the pseudo-schema.

For ERDSMetadata as an extension to SMP, the following values shall be used for identification of the extension and the responsible agency:

ExtensionID: "ERDSMetadata"

ExtensionName: "ERDSMetadata"

ExtensionAgencyID: "ETSI"

ExtensionAgencyName: "European Telecommunications Standards Institute"

ExtensionAgencyURI: "http://www.etsi.org"

ExtensionVersionID: Same as version attribute of the ERDS metadata

ExtensionURI: "http://uri.etsi.org/19522/v1#ERDSMetadata"

ExtensionReasonCode: "ERDSMetadata"

ExtensionReason: "Publish capability metadata for an Electronic Registered Delivery Service"

Other methods for distribution of ERDS metadata are for further study. Registration of the ERDS itself in an SMP as a participant is possible but would require changes to the SMP specification. ERDS metadata may be published as a service information extension in a TSL according to clause 5.5.9 of ETSI TS 119 612 [i.9]; however no requirement is specified to this effect.

Annex A (normative): XML schema files

A.1 XML Schema file location for namespace <http://uri.etsi.org/19522/v1#>

The file at <http://uri.etsi.org/19522/v1.1.1/<FILENAMETOBEDECIDEDBYETSI.xsd>> ([FILENAMETOBEDECIDEDBYETSI.xsd](http://uri.etsi.org/19522/v1.1.1/<FILENAMETOBEDECIDEDBYETSI.xsd>)) contains the definitions of the types and elements defined within the namespace whose URI value is <http://uri.etsi.org/19522/v1#>.

NOTE: The XML Schema file to be stored at the location indicated above when the present document will be published, is for the time being contained in the attachment [en_31952203v010000a0.zip](#) accompanying the present document.

History

Document history			
V1.0.0	May 2018	EN Approval Procedure	AP 20180823: 2018-05-25 to 2018-08-23