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Electronic Signatures and Infrastructures (ESI) - Electronic Registered Delivery Services - Part 4: Bindings - Sub-part 3: Capability/requirements bindings

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Foreword

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

The present document is part 4, sub-part 3 of a multi-part deliverable. Full details of the entire series can be found in part 1 [i.2].

National transposition dates	
Date of adoption of this EN:	23 August 2018
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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 provides the binding of the Common Service Interface information, whose semantics is defined in ETSI EN 319 522-2 [1] and whose format is defined in ETSI EN 319 522-3 [2] to the specific services provided by OASIS Business Metadata Service Location [3] and the OASIS Service Metadata Publishing [4]. Furthermore, the present document specifies how to establish trust between ERDSs by use of a Trusted List [5], including the EU Trusted List system used for qualified trust services under the Regulation (EU) No 910/2014 [i.1] using the Trusted List format defined by the corresponding Commission implementing decision (EU) 2015/1505 [i.3], and by means of a domain PKI.

2 References

2.1 Normative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found at https://docbox.etsi.org/Reference/.

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

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

[1] ETSI EN 319 522-2: "Electronic Signatures and Infrastructures (ESI); Electronic Registered Delivery Services; Part 2: Semantic Contents".

[2] ETSI EN 319 522-3: "Electronic Signatures and Infrastructures (ESI); Electronic Registered Delivery Services; Part 3: Formats".

[3] OASIS: "Business Document Metadata Service Location Version 1.0", OASIS standard, August 2017.

[4] OASIS: "Service Metadata Publishing (SMP) Version 1.0", OASIS standard, August 2017.

[5] ETSI TS 119 612: "Electronic Signatures and Infrastructures (ESI); Trusted Lists".

[6] W3C Recommendation (11 April 2013): "XML Signature Syntax and Processing Version 1.1".

2.2 Informative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

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

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

[i.1] 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] ETSI EN 319 522-1: "Electronic Signatures and Infrastructures (ESI); Electronic Registered Delivery Services; Part 1: Framework and Architecture".

[i.3] Commission Implementing Decision (EU) 2015/1505 of 8th September 2015 laying down technical specifications and formats relating to trusted lists pursuant to Article 22(5) of Regulation (EU) No 910/2014.

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.2] apply.

3.2 Abbreviations

For the purposes of the present document, the abbreviations given in ETSI EN 319 522-1 [i.2] apply.

4 Common Service Interface bindings - general concepts

This part specifies the binding for the common services to specific protocols. Semantics for common services shall be as defined in ETSI EN 319 522-2 [1] and formats shall be as defined in ETSI EN 319 522-3 [2].

Specifically:

- receiver identification service is bound to OASIS Business Document Metadata Service Location [3];
- capability discovery service is bound to OASIS Service Metadata Publisher [4];
- ERDS trust evaluation is bound to Trusted List [5] or to use of a domain PKI.

5 Capability metadata location, BDXL binding

When metadata is used, the first step is to obtain the address where the sought metadata is located. This goes for both recipient metadata and metadata about ERDS capabilities, relevant for both the R-ERDS and intermediate ERDSs. This clause describes use of the OASIS Business Document Metadata Service Location Version 1.0 [3] (BDXL), commonly used with the OASIS Service Metadata Publishing (SMP) Version 1.0 [4] described in the next clause.

BDXL is based on DNS (Domain Name Service), which is a common infrastructure for the Internet. From unique identification of an actor - the participant identifier in BDXL terms - for which metadata shall be accessed, a query string is constructed for DNS, returning a URI to the SMP publishing metadata for the identified actor.

In the scope of the present document, the actor identified by the participant identifier is either a recipient or an ERDS, meaning the identified SMP publishes either recipient metadata or ERDS capability metadata as defined by ETSI EN 319 522-2 [1]. ERDS metadata is defined as an extension to SMP metadata, meaning that ERDS metadata is also stored in SMP.

Registration in DNS and forming of query strings shall be done as specified by OASIS BDXL [3]. The identity of an ERDS should be registered in BDXL, i.e. in DNS, by a domain name.

BDXL [3] requires a participant identifier to be registered in BDXL with one and only one URI to an SMP, i.e. one identity shall resolve to one SMP. When a recipient subscribes to more than one ERDS using more than one SMP, either:

- the BDXL registration for the recipient shall resolve to one and the same SMP, which in turn may include pointers (SMP redirection) to other SMPs holding information about the recipient; or

- the recipient identification shall be coupled with a domain, which may be the ERDS name or other information, thereby creating multiple participant identifiers that in BDXL may resolve to URIs for different SMPs.

6 Capability metadata publishing, SMP binding

The URI returned from BDXL points to a metadata repository that shall be in accordance with OASIS Service Metadata Publishing (SMP) Version 1.0 [4].

As stated by SMP [4], clause 4, for core conformance to SMP, SMP service implementations and client lookup implementations (usually from S-ERDS) shall comply with the SMP specification, in particular:

1) The XML schema, refer Appendix B of the SMP specification [4].
2) Use of signatures for signing and verifications as defined in SMP [4], clause 3.6.2.
3) Process execution as defined in SMP [4], clause 2.1.
4) The syntax and semantics defined in the normative parts of SMP [4], clause 3.
5) The SMP REST binding as defined in clauses 3.2, 3.3, 3.4 and 3.5 of SMP [4].

SMP [4], clause 3.6.2 prescribes use of a specific mode of enveloped XML DSIG [6] for digital signatures.

In addition to the REST binding defined by SMP [4], further protocol bindings are possible, but the present document does not specify any other bindings.

SMP [4], clause 2.4 defines participant identifier, document identifier, and process identifier. Each type of identifier should be represented by its scheme and value. Document identifier and process identifier are application protocol information that shall be supplied as sender metadata if this information is necessary for selection of the R-ERDS or ERDS RI to which the ERD message shall be forwarded.

If more than one ServiceMetadata resource exists, as allowed by SMP [4], clause 3.4, selection shall be based on document identifier and/or process identifier.

A service in the SMP data model is a URL, which in the context of the present document is the ERDS RI to which the ERD message shall be routed. The capabilities of this ERDS RI are described by the ServiceMetadata.

The SMP specification [4] allows extensions. The use of extensions shall not contradict nor cause non-conformance with the SMP specification [4]. Metadata for the capabilities of an ERDS is defined in ETSI EN 319 522-3 [2] as an extension to SMP. The capabilities described by the 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.

7 Trust information bindings

7.1 Introduction

Trust is defined as the existence of a trust domain within which co-operation between participating ERDSs is regulated.

Trust may be established bilaterally between two or more ERDSs, meaning that the trust domain consists of the ERDSs that have entered into bilateral, mutually recognized agreements. Trust may even be established unilaterally, meaning an ERDS trusts another ERDS but not the other way around; this is not considered further in the present document.

As bilateral trust establishment has challenges in scaling to larger numbers of ERDSs, trust infrastructures may be used to establish trust. In this case, the trust infrastructure, i.e. the trust domain, shall have governance, at least for policy regarding conditions for an ERDS to join.