
Authorised Translations of Electronic Documents

Central element to extend authorised translations of documents to electronically signed, digital documents is an electronic seal, which attests to the correctness of the translation and the authorisation of the translator. It contains a digital signature binding together original and translated document, enabling forensic inspection and therefore legal security in the appropriation of the translation. Organisational aspects of possible implementation variants of electronic authorised translations are discussed and a realisation as a stand-alone web-service is presented

Jan Piechalski, Andreas U. Schmidt

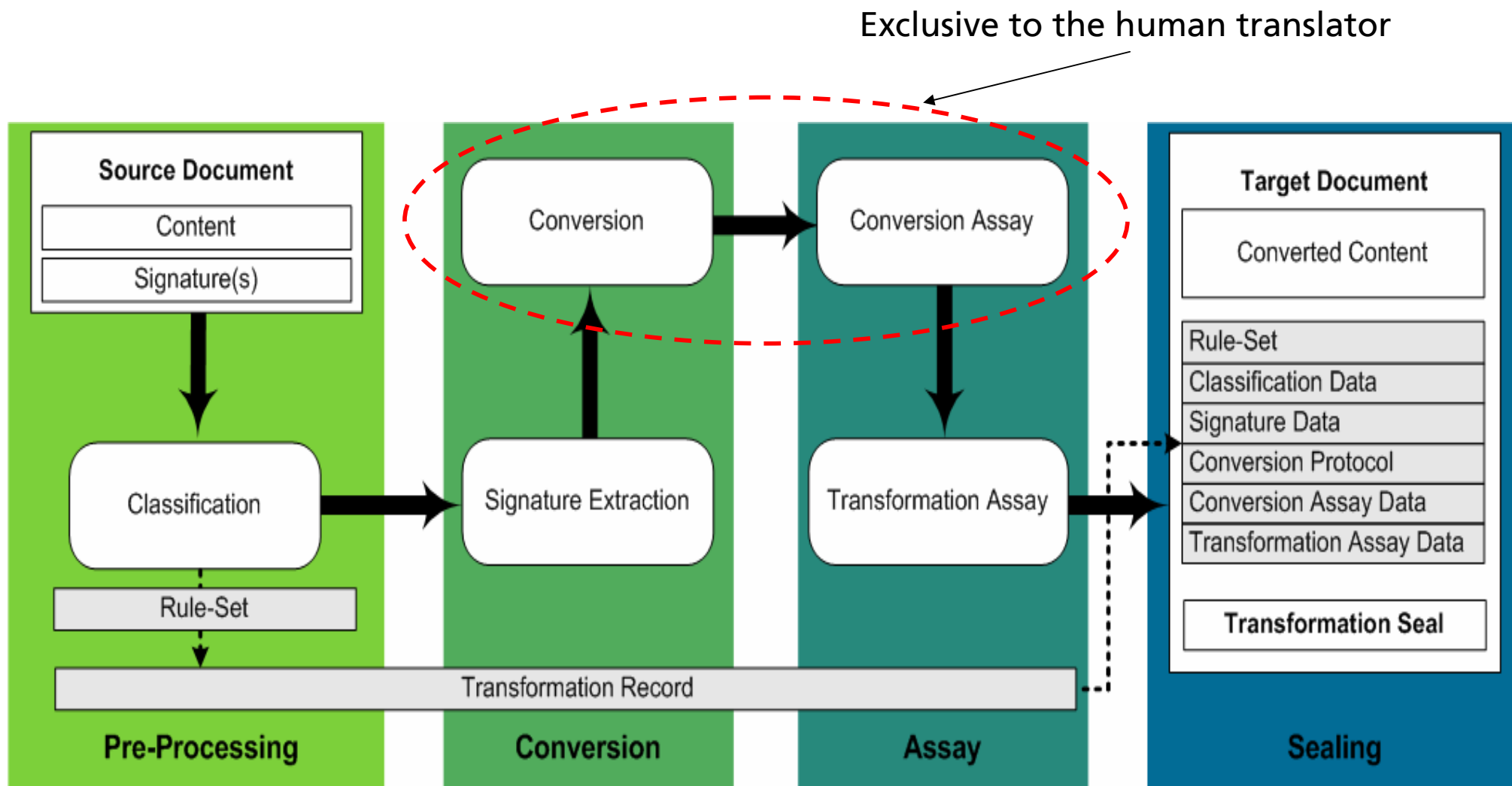
Fraunhofer-Institute for Secure Information Technology SIT

Darmstadt, Germany

ISSA 2006 – Sandton, South Africa, 5 July 2006

Process Analysis of General Secure Transformations

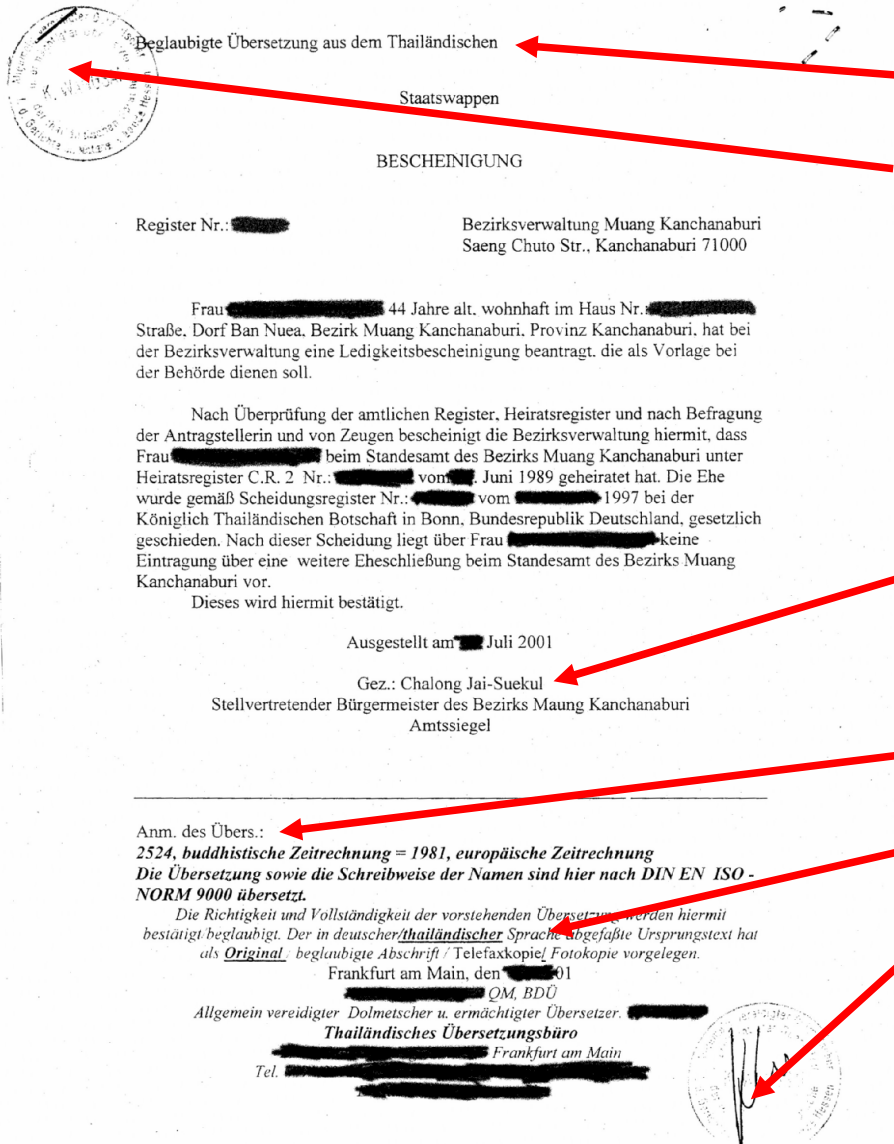
see A. U. Schmidt and Z. Loeb: Legal security for transformations of signed documents: Fundamental concepts.
In D. Chadwick and G. Zhao, eds., EuroPKI 2005, LNCS vol. 3545, pp. 255–270, 2005.



Authorised Translations under German Law

- Performed by a professional translator, **sworn**, **registered with a judicial circuit** corresponding to the location of his office, and equipped with a special **seal**
- Legal regulations concerning authorising of translators vary within Germany between federal states
- **No legal restrictions** to the way authorised translations are created

Authorised Translations – Paper Standards (1/2)



- Source language
- The source document and the target document are **bound together by stapling** the source with the target and **stamping the seal over the staple**
- Description of **handwritten signatures**
- **Annotation**
- "Certificate of accuracy"
- Stamp of the seal and signature



Authorised Translations – Paper Standards (2/2)

Gez.: Chalong Jai-Suekul
Stellvertretender Bürgermeister des Bezirks Maung Kanchanaburi
Amtssiegel

Anm. des Übers.:
2524, *buddhistische Zeitrechnung* = 1981, *europäische Zeitrechnung*
Die Übersetzung sowie die Schreibweise der Namen sind hier nach DIN EN ISO -
NORM 9000 übersetzt.

Die Richtigkeit und Vollständigkeit der vorstehenden Übersetzung werden hiermit
bestätigt/beglaubigt. Der in deutscher/thailändischer Sprache abgefaßte Ursprungstext hat
als Original: beglaubigte Abschrift / Telefaxkopie/ Fotokopie vorgelegen.
Frankfurt am Main, den [REDACTED] 01



- Handwritten signatures in the source document should be described in the target document, if necessary as “illegible”
- Annotations made by the translator (e.g. defects in the source document, transliterations of names or calendar transformations having been applied)
- “Certificate of accuracy” consisting of a statement like “I hereby certify the completeness and accuracy of the translation”, place, date, stamp of the seal and signature – two characteristics: **authentication and authorisation**

Certifications by notaries public under German Law

- Detailed legal regulations concerning the performing of certifications, both for paper and electronic documents, exist
- A certification's annotation according to § 33 *Verwaltungsverfahrensgesetz* has to contain following elements:
 1. Name of the source document
 2. An optional indication that the usage of the certified target document is restricted to a certain authority – for excerpts from public registers.
 3. An optional description of defects found in the original document
 4. Information about original signatures, including validation results
 5. Attestation that the content of the source and the target are identical
 6. Creation time of the certification
 7. Creation place of the certification
 8. A qualified signature of a person authorised to perform the certification
- A translation's annotation is similar
- Elements 1 and 2 are not required and only of limited sense for electronic translations

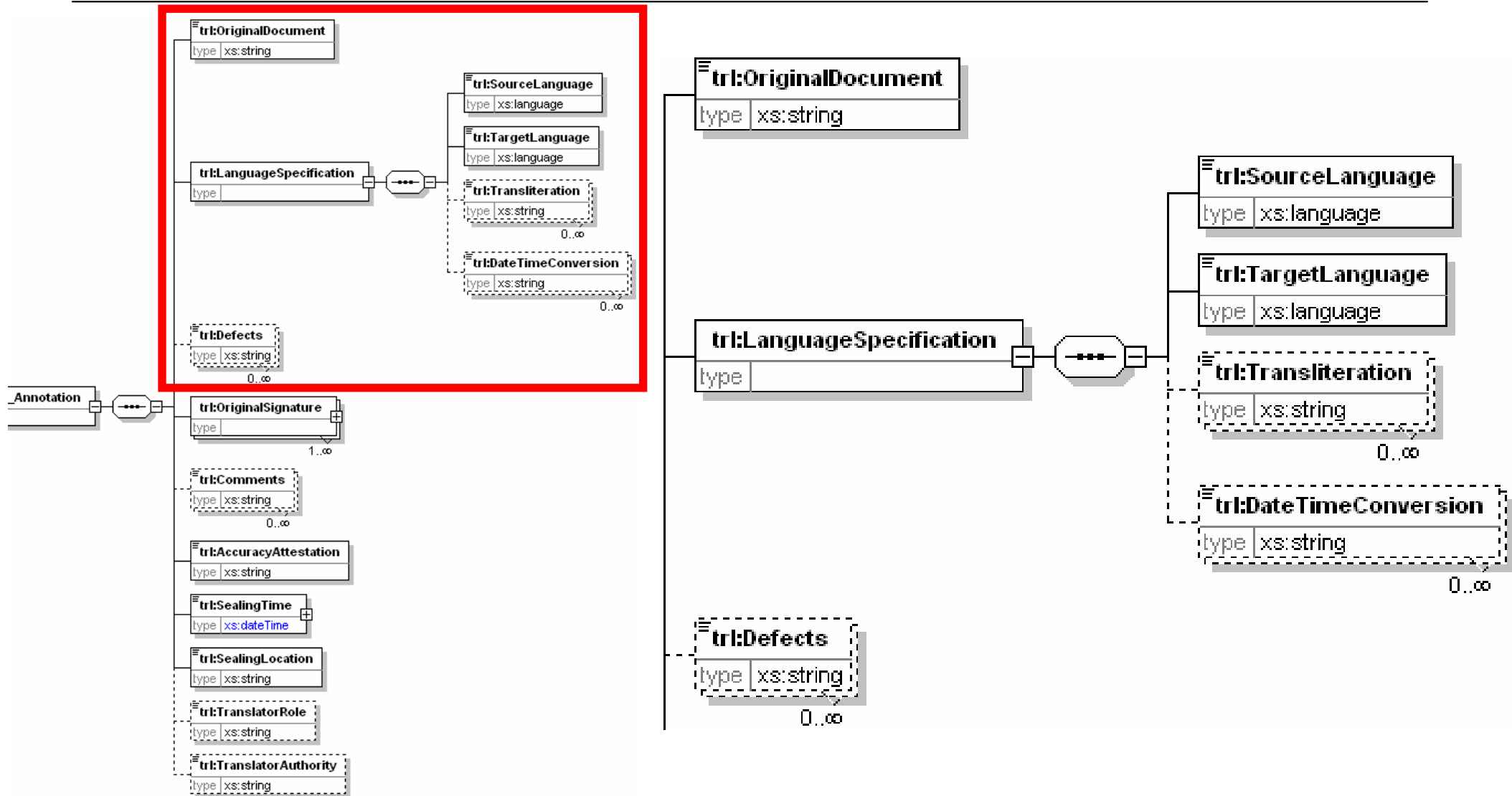
Requirements for Electronic Translations

- Electronic signatures in the original document: signature extraction instead of a simple description
 - Signer's identity
 - Integrity of the source
- Two authentication characteristics replacing signature and seal
 - Electronic signature
 - Attribute certificate
- **Binding inseparably source and target document** by inserting the entire source document into the annotation of the target

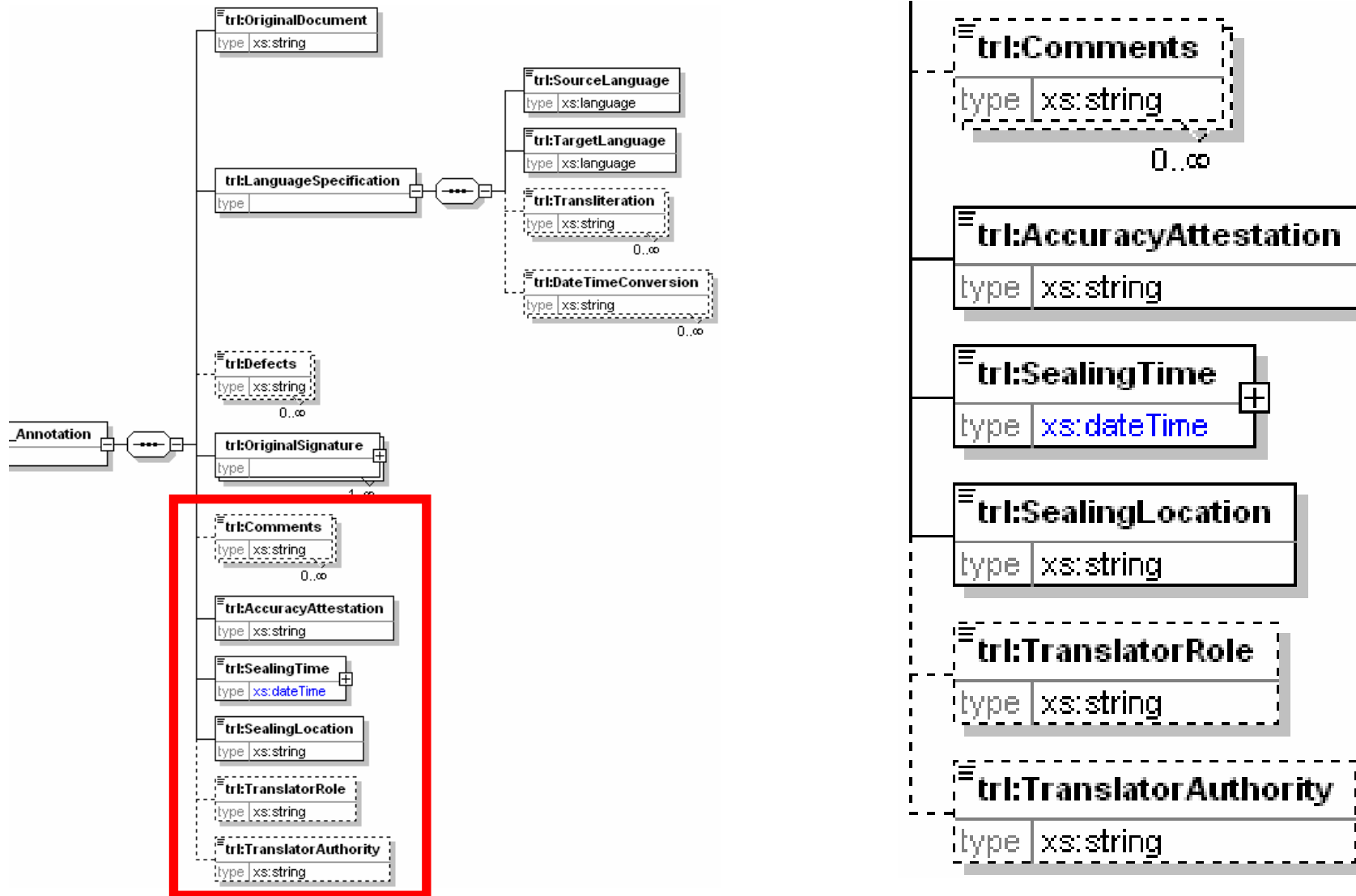
Applicable Internationalisation Standards

- Specification of source and target language with ISO 639-2 codes (e. g. "eng" for English)
 - The XML schema type 'xs:language' applies ISO 639-2
- Standards for transliteration of names (e. g. ISO 9 for Cyrillic → Latin)
- Date and time conversion during translation
 - ISO 8601 and ISO 2015 – Standards concerning notation of date and time

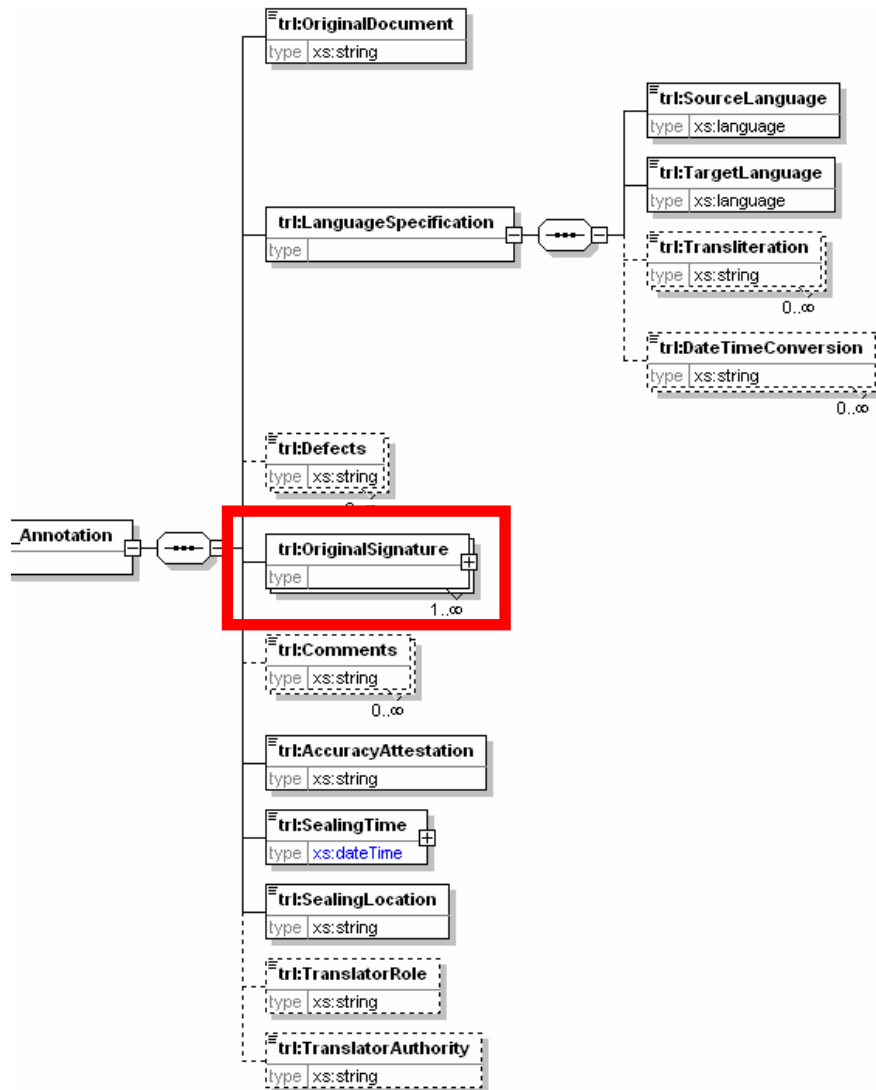
Translation Seal (1/6)



Translation Seal (2/6)

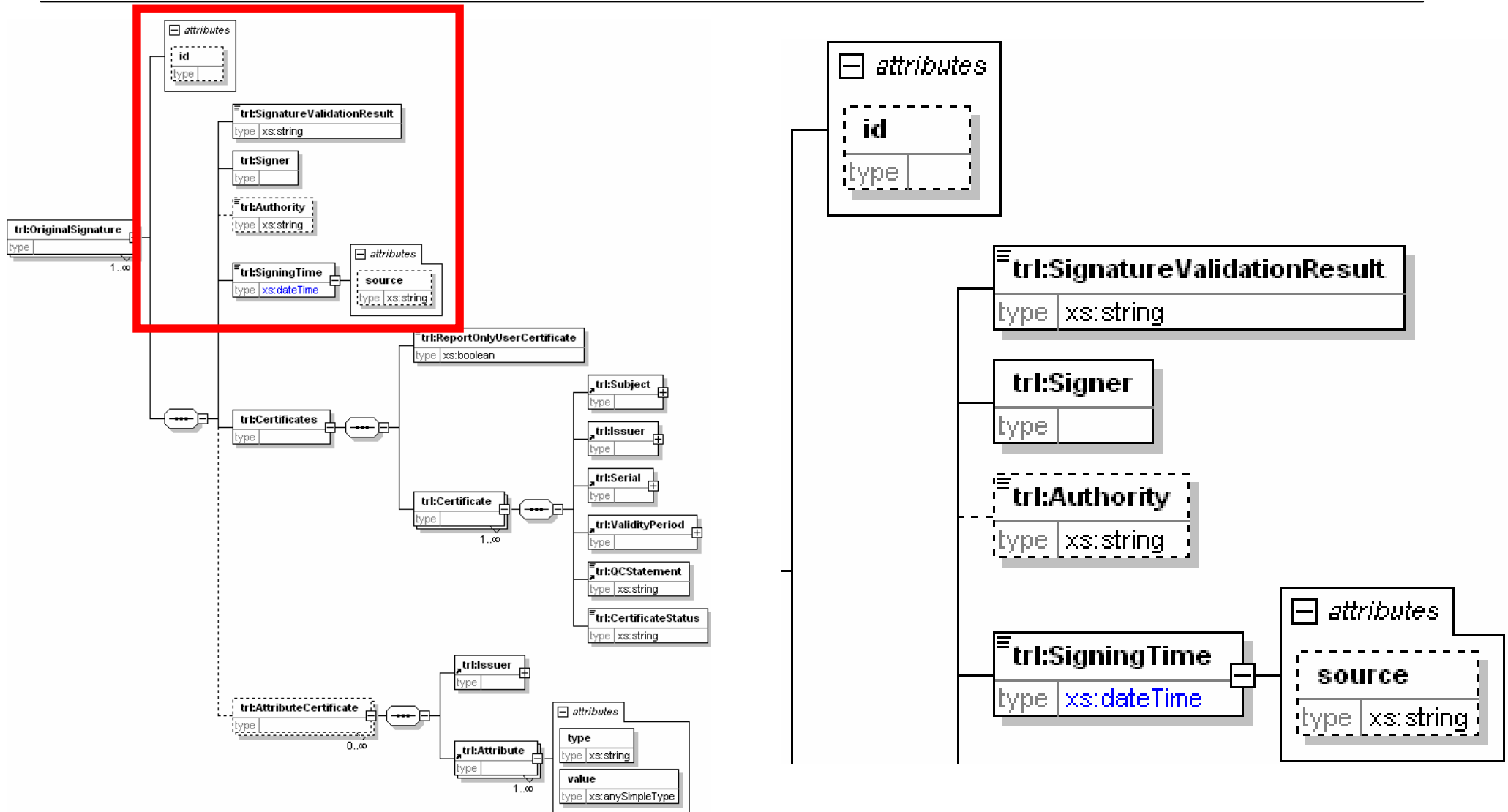


Translation Seal (3/6)

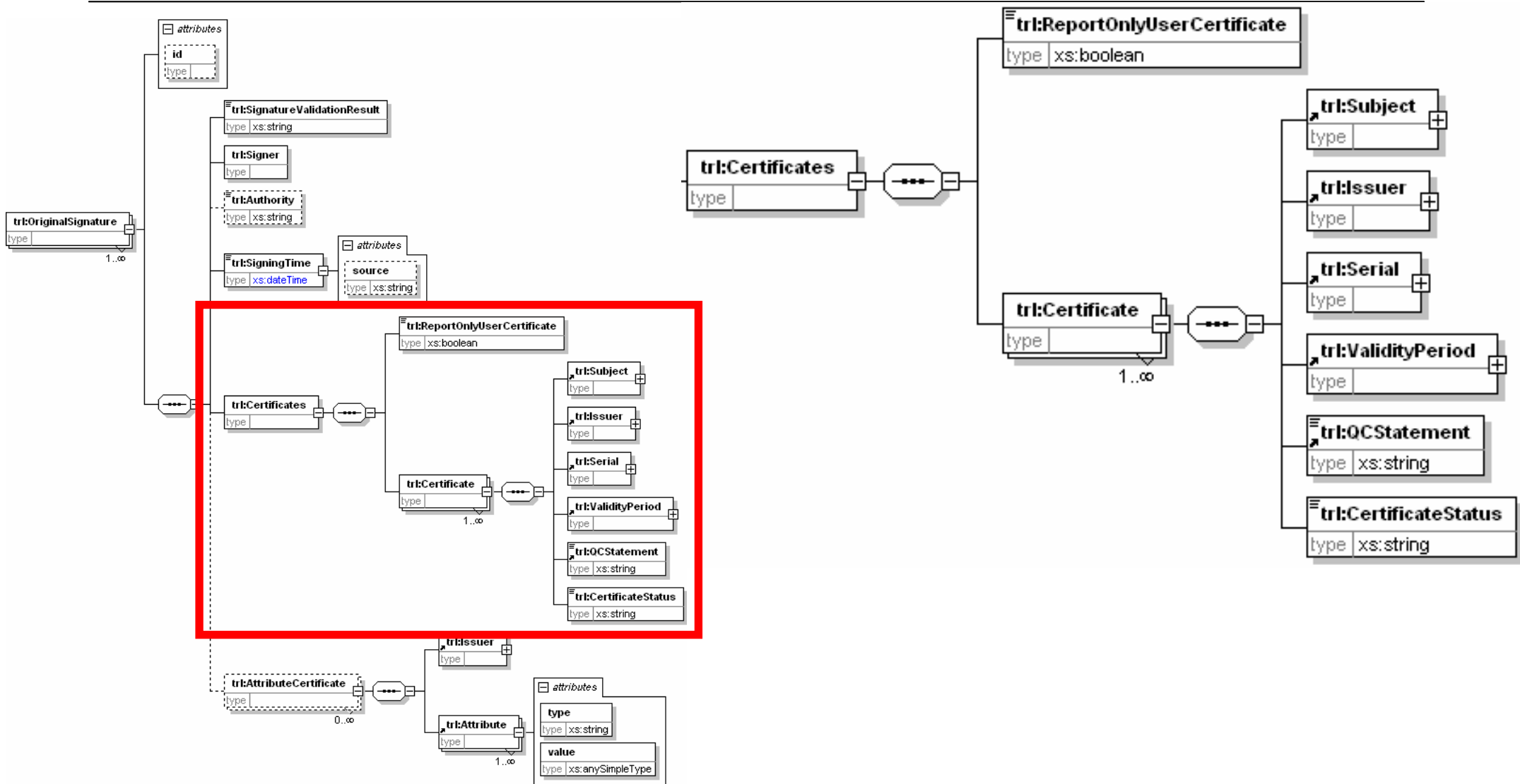


The data structure carrying the extracted original signatures is a genuine TransiDoc data structure – not specific to translations

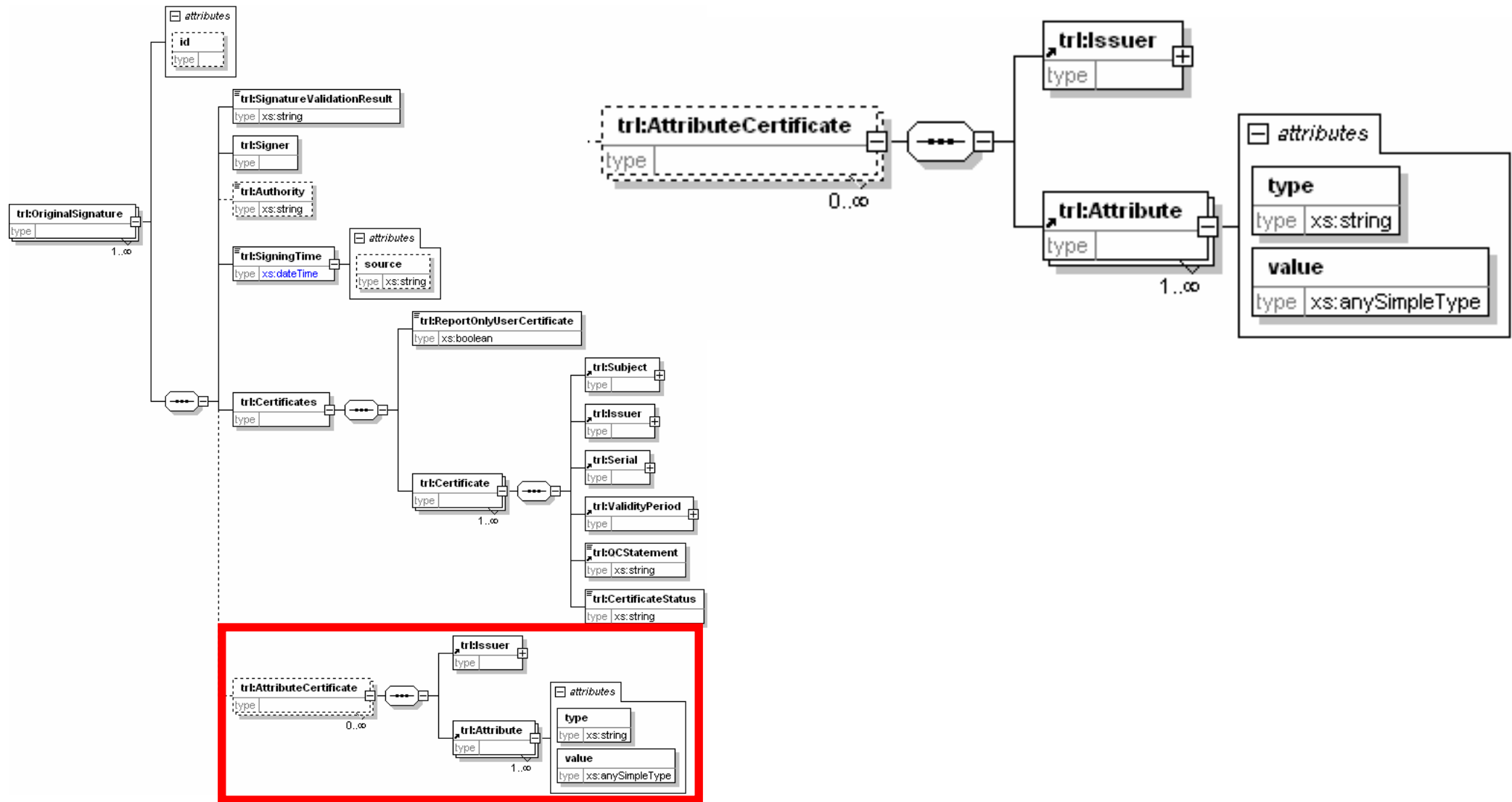
Translation Seal (4/6)



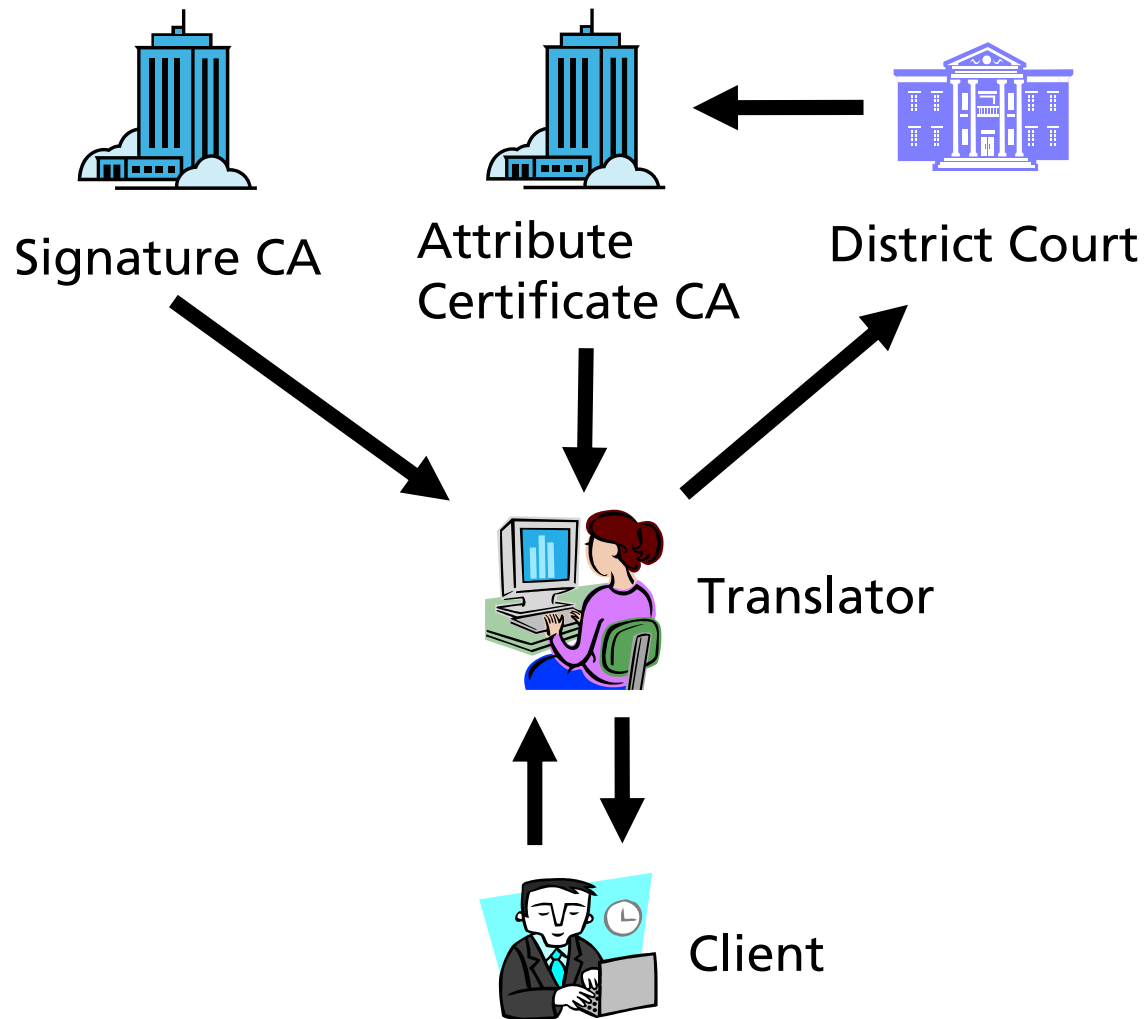
Translation Seal (5/6)



Translation Seal (6/6)

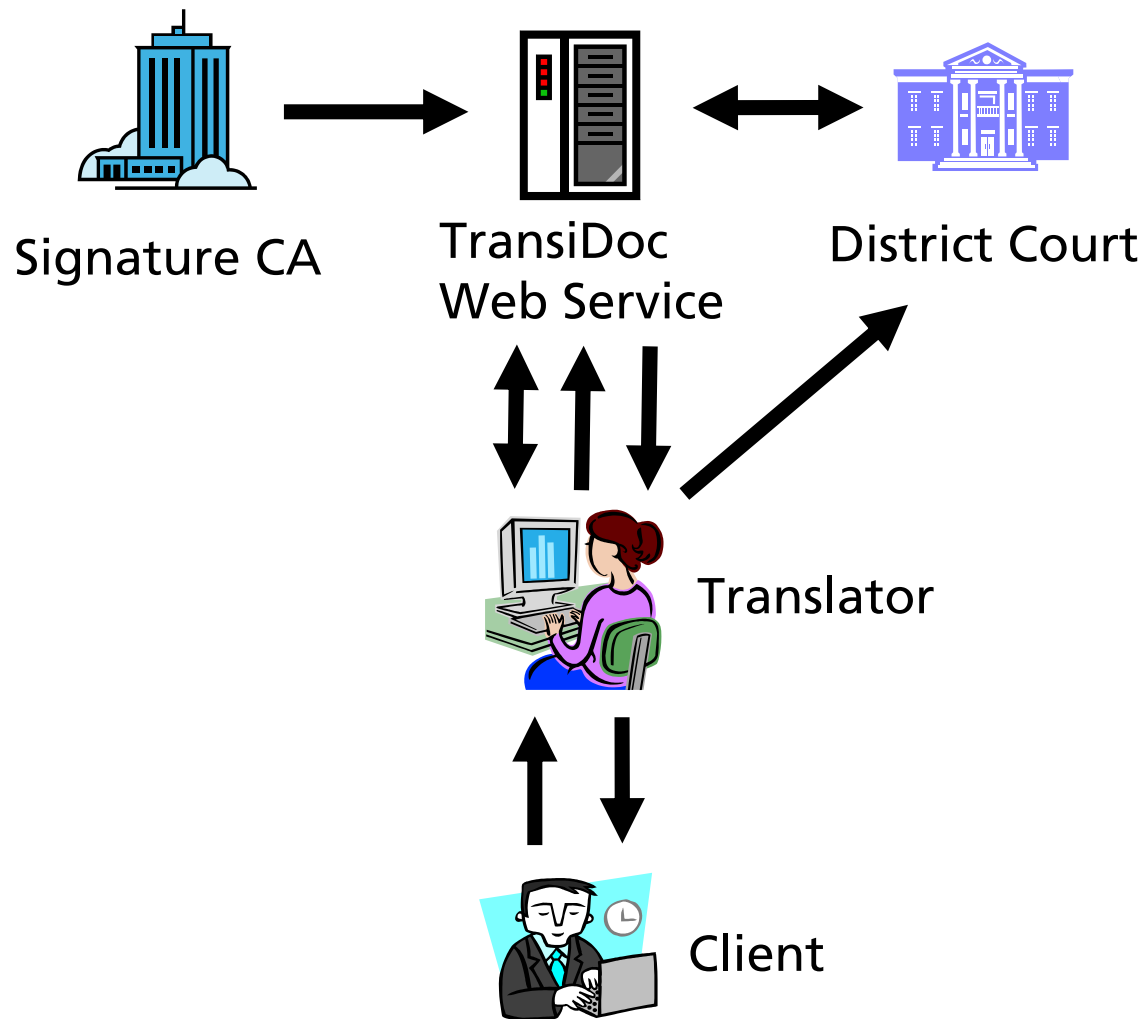


PKI-based Solution



1. The translator receives a public key, a private key and an "ordinary" certificate from the signature CA
2. The translator **applies for authorisation** at the district court
3. The district court initiates the issuance of an **attribute certificate** by the attribute certificate CA
4. The translator receives an attribute certificate from the attribute certificate CA
5. The client sends a source document to the translator
6. The translator performs the translation, **seals the target document** with a transformation seal including his attribute certificate and signs the target
7. The translator sends the target document to the client

Stand-alone Web Service Solution



1. The web service receives a public key, a private key and an "ordinary" certificate from the CA
2. The translator applies for authorisation at the district court
3. The translator registers with the web service
4. The web service checks the translator's authorisation at the district court and adds him to his database
5. The client sends a source document to the translator
6. The translator performs the translation
7. The translator sends the source document and the translation to the web service
8. The web service seals the target document with a transformation seal including his certificate and signs the target
9. The web service sends the target document to the translator
10. The translator sends the target document to the client

Web Service Implementation (1/6)

Create Translation Seal

Original Document: Browse...

File Type: PDF

Language (ISO 639-2): English (eng) ▼

Validate

Original Signatures: Validate and abort transformation, if validation result negative

Ignore

Translation: Browse...

File Type: PDF

Language (ISO 639-2): German (deu) ▼

Transliteration Standard: ISO 9

Date and Time Conversion Method:

Comment: Translation created according to DIN 2345.

Accuracy Attestation: I hereby certify the accuracy and completeness of the translation.

- File upload of original document and translation

Web Service Implementation (2/6)

Create Translation Seal

Original Document: Browse...

File Type: PDF

Language (ISO 639-2): English (eng)

Original Signatures: Validate
 Validate and abort transformation, if validation result negative
 Ignore

Translation: Browse...

File Type: PDF

Language (ISO 639-2): German (deu)

Transliteration Standard: ISO 9

Date and Time Conversion Method:

Comment: Translation created according to DIN 2345.

Accuracy Attestation: I hereby certify the accuracy and completeness of the translation.

Reset Continue >>

- File type specification
- Allowed document formats are listed

Web Service Implementation (3/6)

Create Translation Seal

Original Document:

File Type: PDF

Language (ISO 639-2): English (eng)

validate
 Validate and abort transformation, if validation result negative
 Ignore

Original Signatures:

Translation:

File Type: PDF

Language (ISO 639-2): German (deu)

Transliteration Standard: ISO 9

Date and Time Conversion Method:

Comment: Translation created according to DIN 2345.

Accuracy Attestation: I hereby certify the accuracy and completeness of the translation.

- Source and target language specification according to ISO 639-2

Web Service Implementation (4/6)

Create Translation Seal

Original Document:

File Type: PDF

Language (ISO 639-2): English (eng)

Original Signatures: Validate
 Validate and abort transformation, if validation result negative
 Ignore

Translation:

File Type: PDF

Language (ISO 639-2): German (deu)

Transliteration Standard: ISO 9

Date and Time Conversion Method:

Comment: Translation created according to DIN 2345.

Accuracy Attestation: I hereby certify the accuracy and completeness of the translation.

- Original signatures policy
 - Validate signatures and continue transformation in any case
 - Validate signatures and abort transformation, if validation result negative
 - Ignore original signatures

Web Service Implementation (5/6)

Create Translation Seal

Original Document:

File Type: PDF

Language (ISO 639-2): English (eng)

Original Signatures: Validate
 Validate and abort transformation, if validation result negative
 Ignore

Translation:

File Type: PDF

Language (ISO 639-2): German (deu)

Transliteration Standard: ISO 9

Date and Time Conversion Method:

Comment: Translation created according to DIN 2345.

Accuracy Attestation: I hereby certify the accuracy and completeness of the translation.

- Transliteration standard of names
- Conversion method of date and time

Web Service Implementation (6/6)

Create Translation Seal

Original Document:

File Type: PDF

Language (ISO 639-2): English (eng)

Original Signatures: Validate
 Validate and abort transformation, if validation result negative
 Ignore

Translation:

File Type: PDF

Language (ISO 639-2): German (deu)

Transliteration Standard: ISO 9

Date and Time Conversion Method:

Comment: Translation created according to DIN 2345.

Accuracy Attestation: I hereby certify the accuracy and completeness of the translation.

- Translator's comment
- Attestation of accuracy and completeness of the translation

Web Service Implementation – Further Steps

- Results of original signatures validation are shown using browser plugins
- Target document is created
- Target document is shown to the user
 - Original document
 - Translation
 - Workflow definition
 - Workflow report
 - Annotation
 - Signature