

LibreOffice
Conference
BUCHAREST



LibreOffice
The Document Foundation

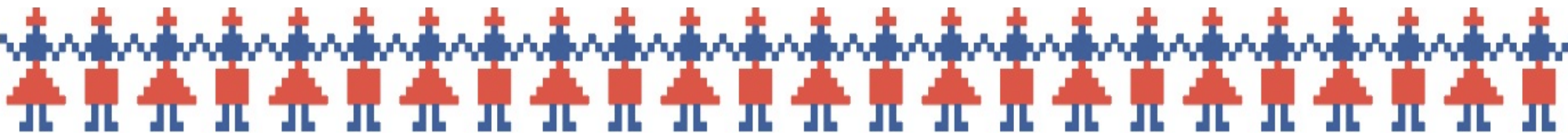
ODF and it's Toolkit

ODP



Svante Schubert

PDF



Basics

What is a Standard?

- A standard is a **blueprint** like a **cooking recipe**!
- A standard creates interoperability (e.g. DINA4)
- A standard improves reusability
- A standard prevents Lock-In-Effect
- A standard is lowering costs (e.g. share tests & validator)

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- A standard is usually published as PDF (digital stone)
Unfortunately no digitalisation for software standards, yet

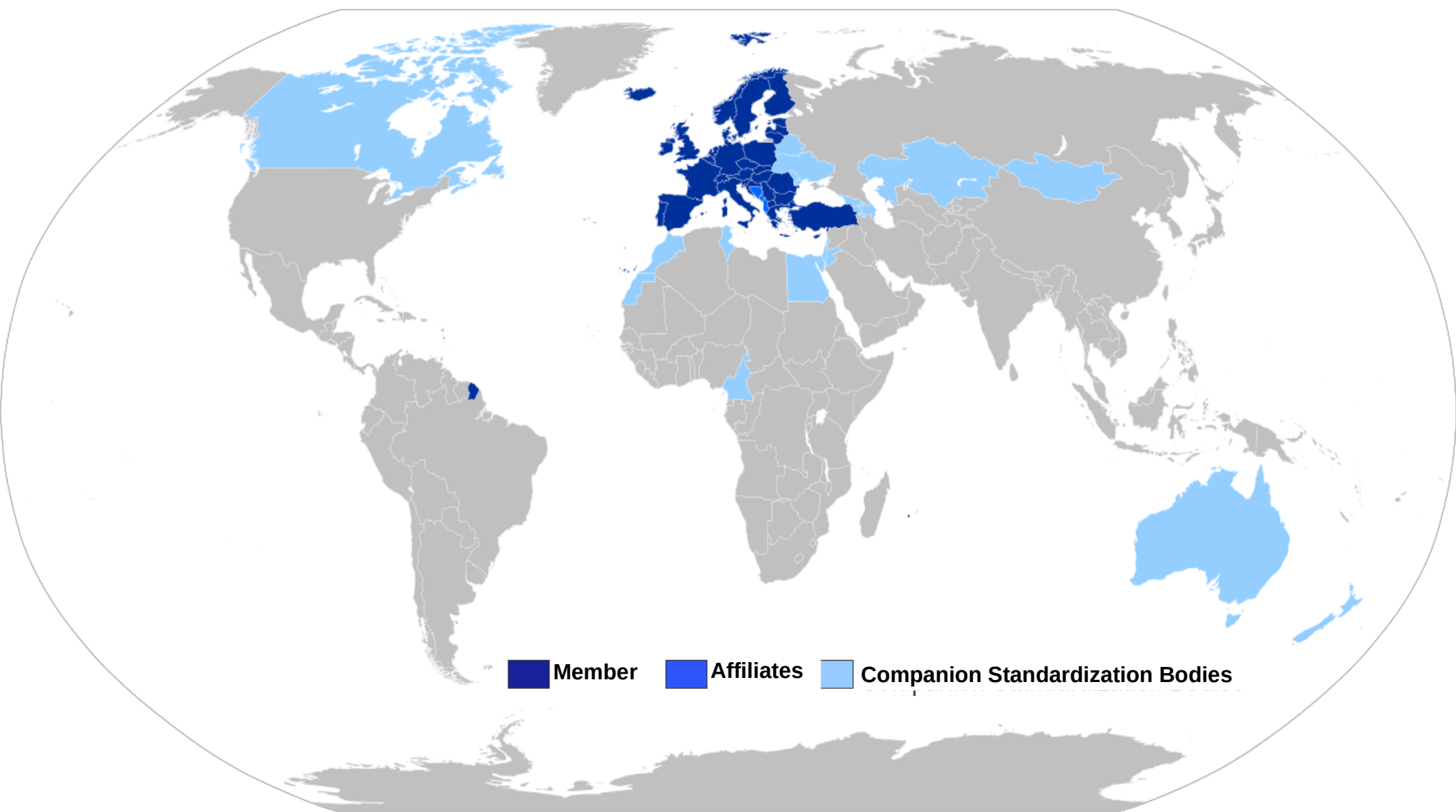
Digitalisation

In a Nutshell - Automation

- Everybody should be able at any time to:
Throw data over the digital fence & automatically understand received data:
 - Without human interaction!
 - Without bi-lateral agreement!

What is an EU Standard?

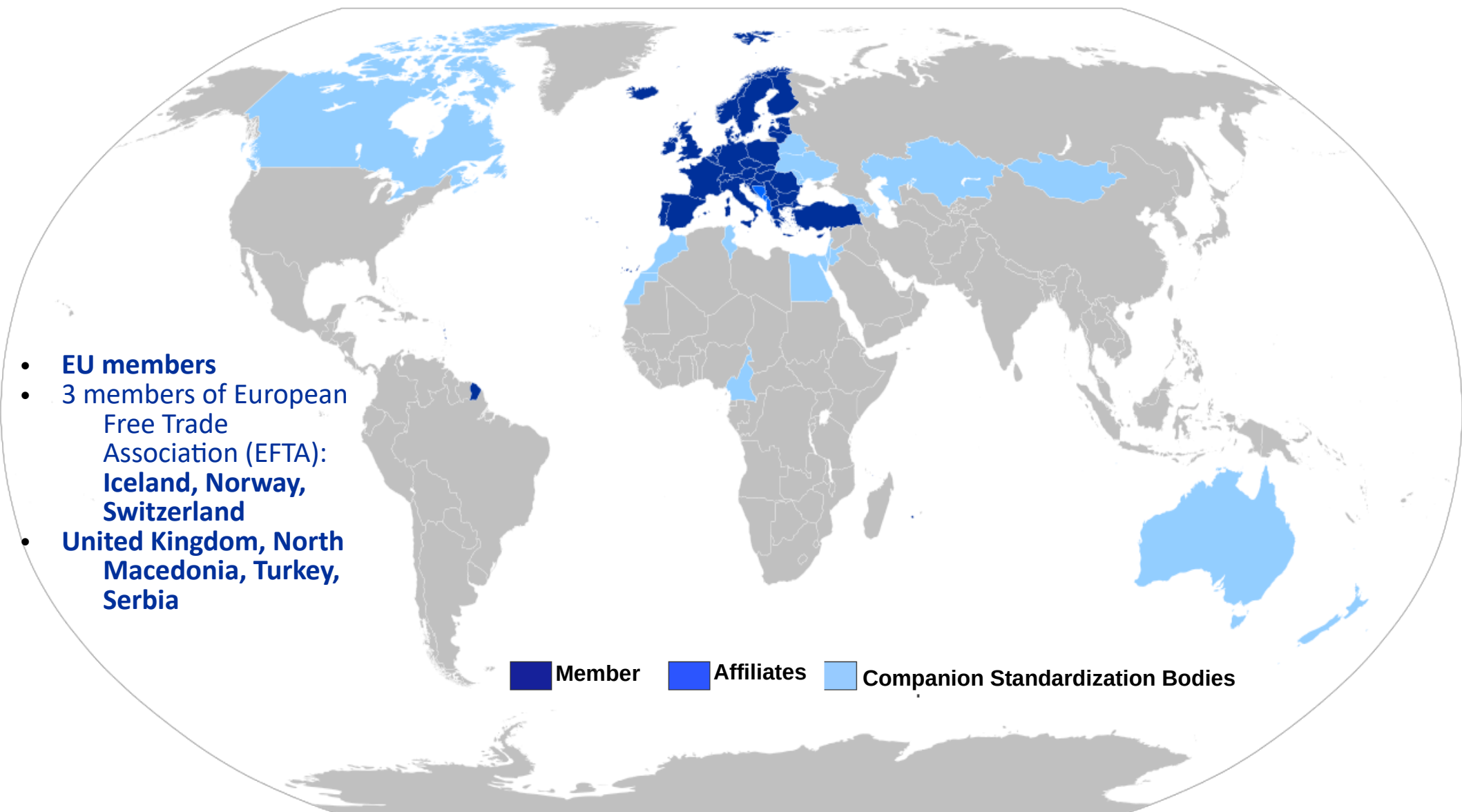
Who is CEN (Comité Européen de Normalisation)?



Member
 Affiliates
 Companion Standardization Bodies

What is an EU Standard?

Who is CEN (Comité Européen de Normalisation)?

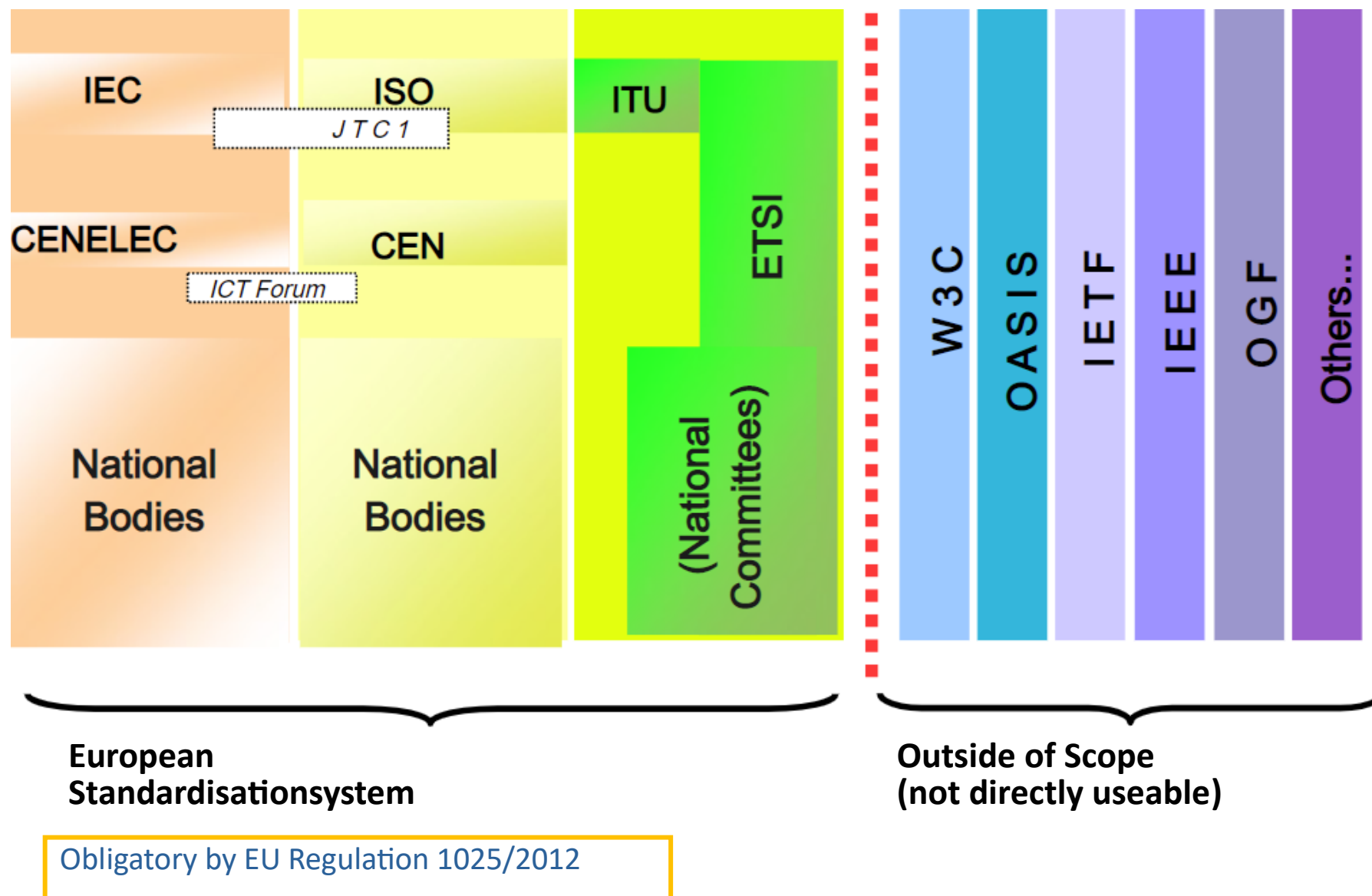


- **EU members**
- 3 members of European Free Trade Association (EFTA): **Iceland, Norway, Switzerland**
- **United Kingdom, North Macedonia, Turkey, Serbia**

Member
 Affiliates
 Companion Standardization Bodies

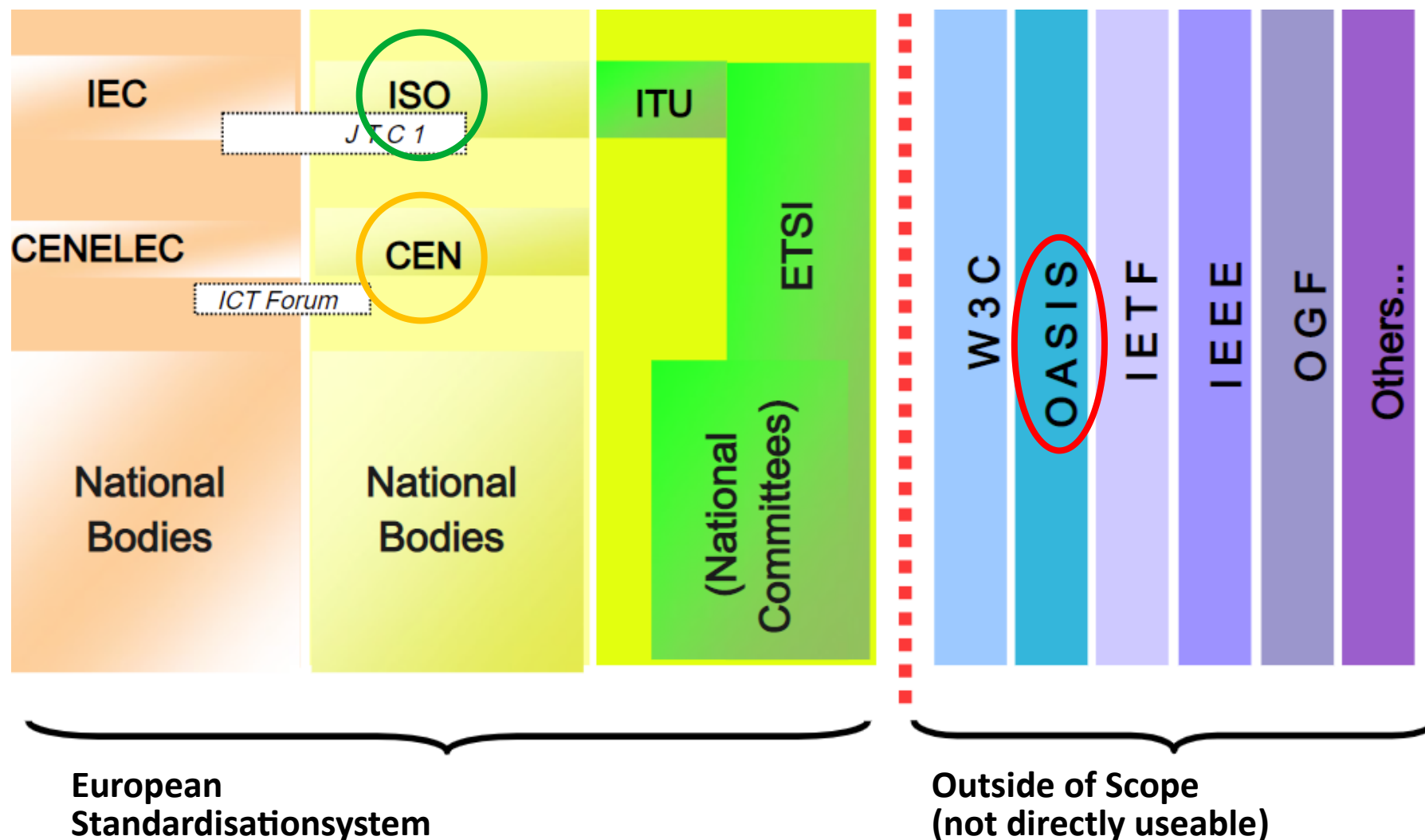
What is EU ICT Standardisation?

Information and Communication Technologies (ICT)



What is EU ICT Standardisation?

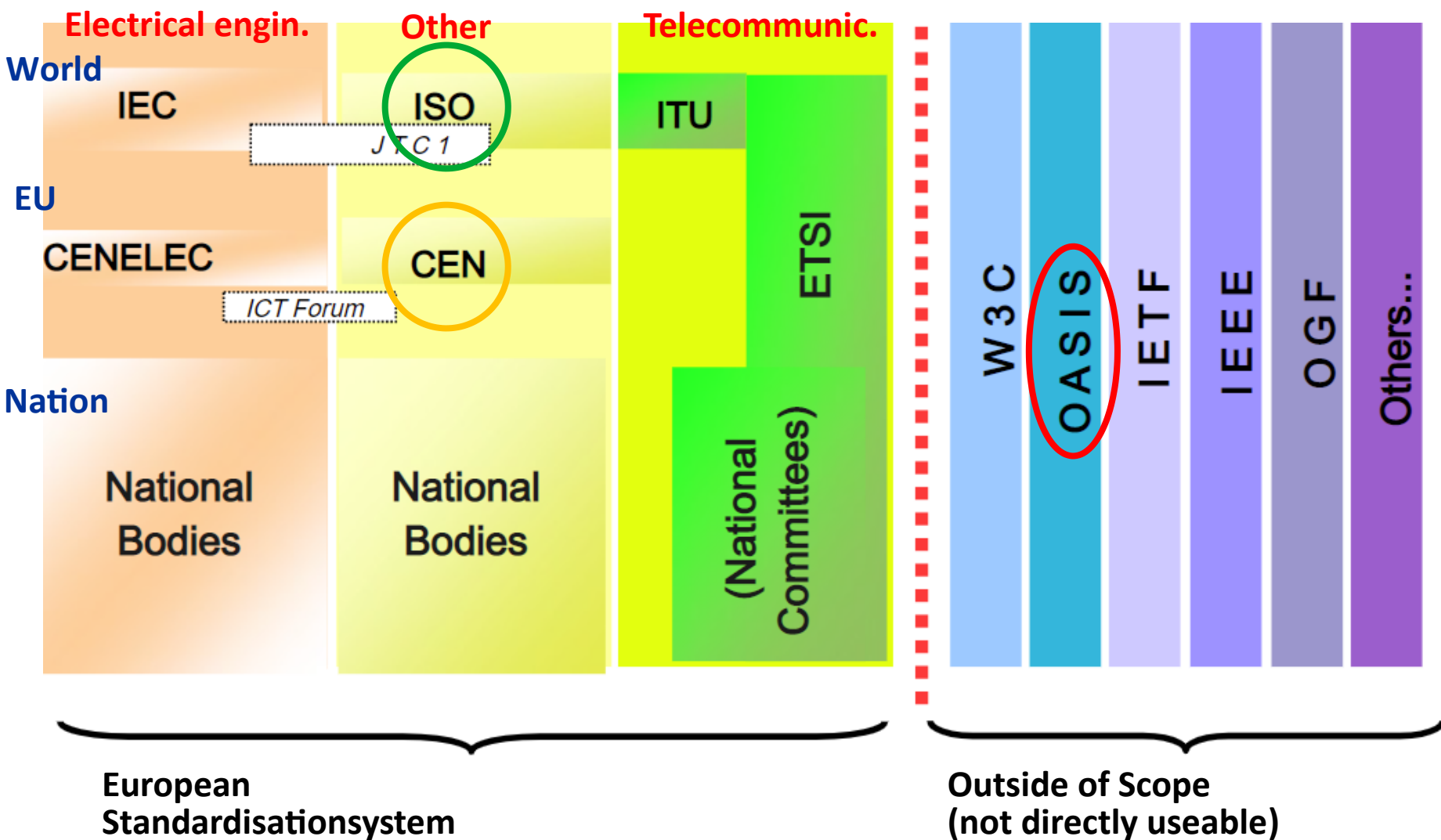
Information and Communication Technologies (ICT)



Obligatory by EU Regulation 1025/2012

What is EU ICT Standardisation?

Information and Communication Technologies (ICT)



Obligatory by EU Regulation 1025/2012

OASIS and ISO ODF Standard

Difference

- ISO standard is the “queen” of standards
- Governments are obligated to use ISO standards
- Government of Great Britain demands the use of ODF
- ISO standard is usually not free and not open
- OASIS ODF standard is given to ISO via „fast path“
- ODF ISO standard only differs on editorial level
- ODF Standard is only maintained on OASIS level

OASIS and ISO ODF Standard

Status

- ODF 1.3 was published (27. April 2021)
- ISO standard ODF 1.3 is “in the queue”
- OASIS TC has a feature freeze for ODF 1.4

OASIS OpenDocument Technical Committee (TC)

Voting Members

- Patrick Durusau [**OASIS TC chair & editor**]
- Svante Schubert [**OASIS TC chair & editor**]
- Francis Cave [**OASIS TC secretary & editor**]
- Regina Henschel (*TDF*)
- Michael Stahl (*allotropia*)
- Alfred Hellstern (*Microsoft*)
- Prof. Andreas Guelzow (worked on Calligra - left mid 2023)

ODF Features

OASIS ODF 1.4 issues

- Feature freeze for ODF 1.4 at the OASIS TC
- **OASIS issues tracker** (for ODF Syntax and/or Semantic)
 - 77 issues for ODF 1.4 in OASIS issue tracker
- **GitHub issue tracker** (for editorial issues of specification)
 - 5 editorial issues on ODF 1.4 specification
 - GitHub for Software Tooling required for ODF spec delivery

ODF Features

ODF Status of LibreOffice

- **TDF Budget 2023:**
 - Missing ODF Features (general collection)
 - Missing ODF Features: Attribute `svg:d` of `<draw:path>` some of the possible commands are missing
 - Missing ODF Features: `Draw:shadow-offset-x/y` only partially implemented
 - Missing ODF Features: The attribute `draw:text-rotate-angle` is interpreted, but there exists no user interface to change it.
 - Missing ODF Feature: `<draw:regular-polygon>` missing completely
 - **Improve release process of ODF versions (Automation)**
- **TDF Budget 2024: Transition to ODF 1.4**

ODF SPECIFICATION

GENERATION MISSING



13.8 <form:property>

The <form:property> element defines the name, type and value of a property.

The <form:property> element is usable within the following element: <form:properties> [13.7](#).

The <form:property> element has the following attributes: form:property-name [19.300](#), office:boolean-value [19.371](#), office:currency [19.373](#), office:date-value [19.374](#), office:string-value [19.383](#), office:time-value [19.386](#), office:value [19.388](#), office:value-type [19.389](#).

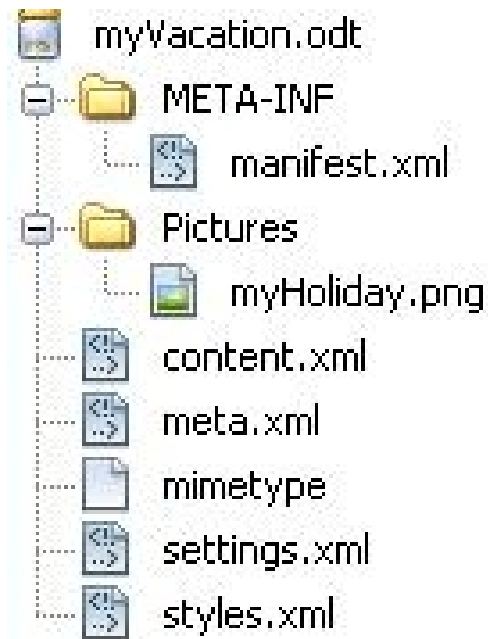
The <form:property> element has no child elements.

https://docs.oasis-open.org/office/OpenDocument/v1.3/os/part3-schema/OpenDocument-v1.3-os-part3-schema.html#element-form_property

Basics

What is a ODF?

- **ODF document** is a ZIP (of mostly XML)

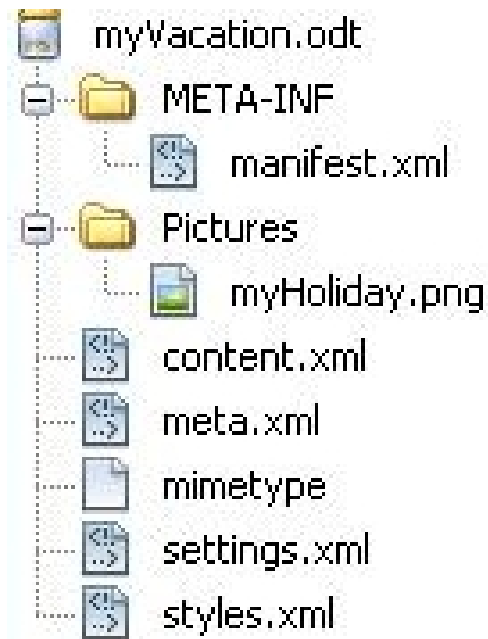


- **ODF Package**
(OASIS spec. part 2)
- **ODF XML**
(OASIS spec. Part 3)

Basics

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(OASIS spec. part 2)
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(OASIS spec. Part 3)

- **OASIS ODF Primer** missing:
Semantic and Syntax in a Nutshell

Basics

What is Semantik & Syntax?

- **Semantic** (*Wine*) described by **Syntax**/Language (*wine/vino*)



Office Document Semantics

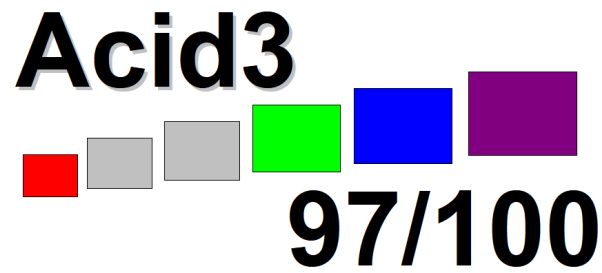
Features and Subfeatures

- Required to split complexity: How to eat an elephant?
- Semantics is what the common user “knows”
- Semantics are known accross file formats (e.g. table)
- Semantics of file format are the features
- Subfeature
If a feature (e.g. table background color) does not exist without its parent (table) it is a subfeature
- There can be many syntaxes (XML, JSON..) for a semantic

Document Standards

API on Semantic & Syntax

- ODF XML only the final state of a document (load / save)
- ODF defines no state changes (e.g. column insertion in table)
- No state changes == no API == no regression test at standard
Like [HTML/CSS ACID regression tests](#)

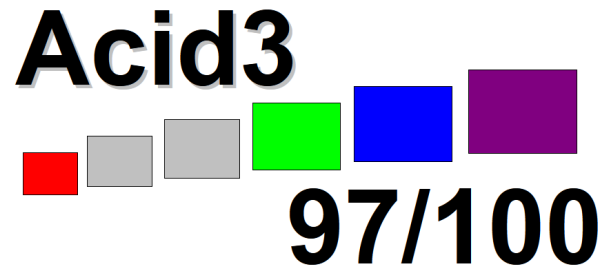


To pass the test, a browser must use its default settings, the animation has to be smooth, the score has to end on 100/100, and the final page has to look exactly, pixel for pixel, like [this reference rendering](#).

Document Standards

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- Remember Change Tracking becomes easier after defining Changes!
- Are such interoperable Tests / Macros / API desired?

Document Standards

Semantic Features and their Changes

How to find a Semantic API?

- 1) Find semantic features (feature tree of ODF)
- 2) What can be added / changed / deleted via LO GUI?
User feature (and their state changes)
- 3) Analysis of ODF grammar – What elements stick together?
- 4) What is the vocabulary on features used by ODF specification?
- 5) What is the vocabulary on features used by LO documentation and / or testing?

ODF Validator

This service checks conformance of ODF documents based on their OpenDocument Format specification. It does not cover all conformance criteria, yet (see [implementation details](#)).

[ODF Version:](#)

auto-detect 

[Logging:](#)

verbose 

Choose ODF documents for validation:

list.odt

This service is provided to you by [The Document Foundation](#)



LibreOffice
The Document Foundation

This service does not cover all conformance criteria of the OpenDocument Format specification. It is not applicable for formal validation proof. Problems reported by this service only indicate that a document may not conform to the specification. It must not be concluded from errors that are reported that the document does not conform to the specification without further investigation of the error report, and it must not be concluded from the absence of error reports that the OpenDocument Format document conforms to the OpenDocument Format specification.

ODF Toolkit

Use Cases (1/2)

- Online Validator (or via commandline)
<https://odfvalidator.org/>
- Running XSLT directly on ODF document (no unzipping XML)

ODF Toolkit

Use Cases (2/2)

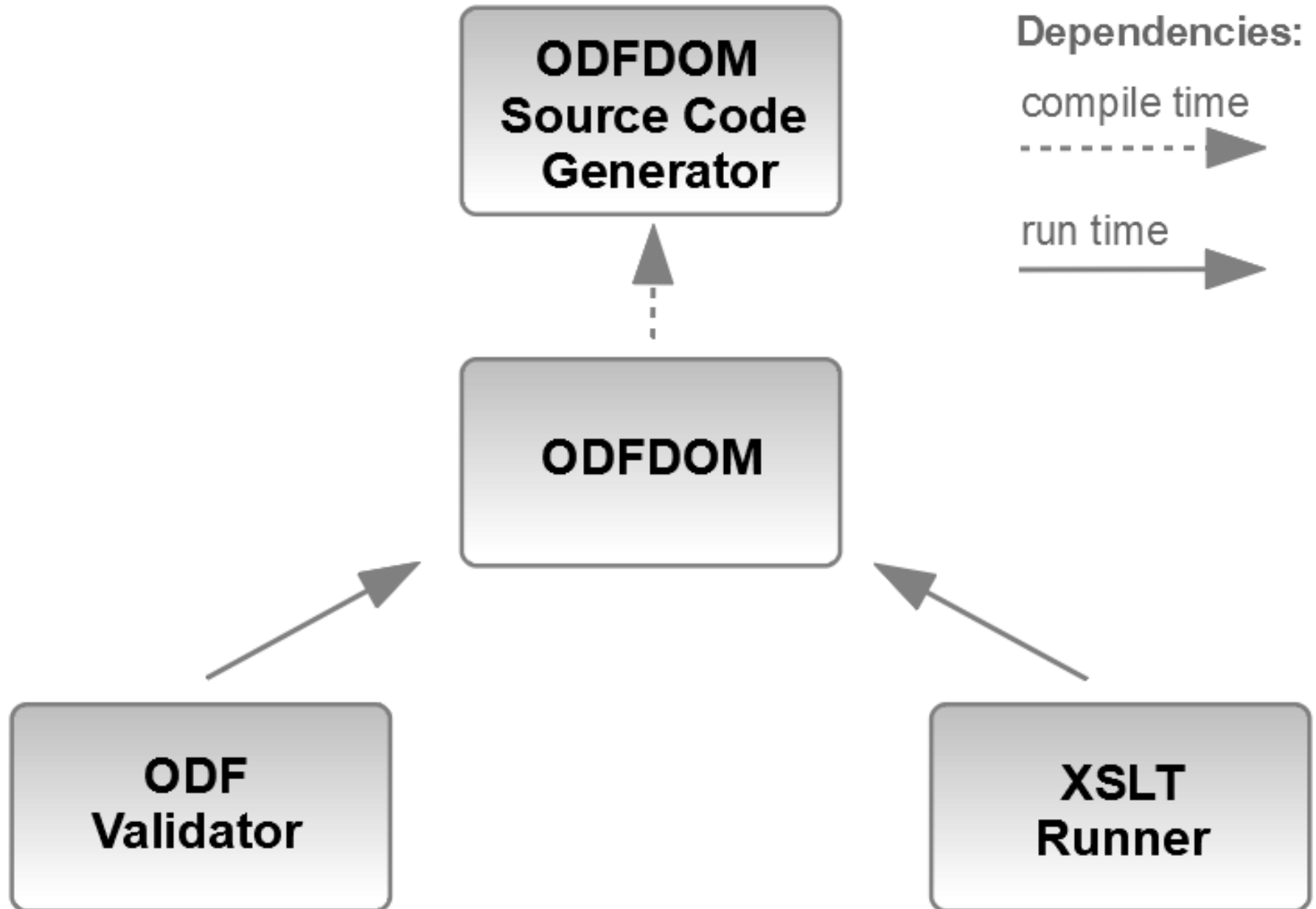
- Editing an ODF document (e.g. Cloud)
 - by API without Layout
 - for Data Insertion (e.g. by Database)
 - for Data Extraction (e.g. Translation)
- Collaboration on Text Documents (ODT)
 - backend for Web Offices
(e.g. OX Documents)
(since ODFDOM v0.10.0 – Nov '21)

<https://odftoolkit.org/docs/presentations/character-styles.odt>

<https://odftoolkit.org/docs/presentations/character-styles.json>

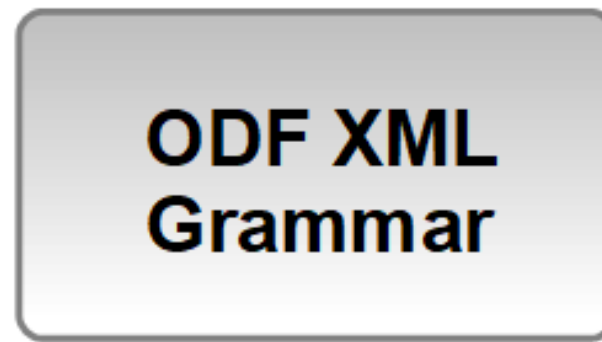
`java -jar odfdom.jar character-styles.odt`

Architecture



ODFDOM Source Code Generator

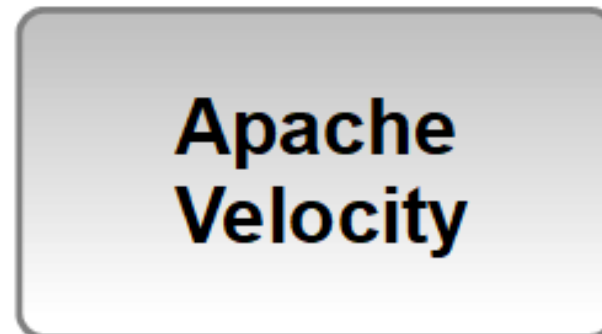
Architecture



OASIS XML grammar:
~18000 text lines
~600 XML elements
~1200 XML attributes



XML Validator -
reads many
XML grammars



template engine
generating sources
by text templates
having a context
with Java access

ODF GRAMMAR - TEXT

HARD TO ANSWER



Can a
paragraph **<text:p>**
be nested
in a valid document?



ODF 1.2 XML:

- 598 **XML Elements**
 - 1301 **XML Attributes**
- > 18k lines

ODF GRAMMAR - TEXT

HARD TO READ



```
15688 <rng:define name="table-table">
15689   <rng:element name="table:table">
15690     <rng:ref name="table-table-attlist"/>
15691     <rng:optional>
15692       <rng:ref name="table-title"/>
15693     </rng:optional>
15694     <rng:optional>
15695       <rng:ref name="table-desc"/>
15696     </rng:optional>
15697     <rng:optional>
15698       <rng:ref name="table-table-source"/>
15699     </rng:optional>
15700     <rng:optional>
15701       <rng:ref name="office-dde-source"/>
15702     </rng:optional>
15703     <rng:optional>
15704       <rng:ref name="table-scenario"/>
15705     </rng:optional>
15706     <rng:optional>
15707       <rng:ref name="office-forms"/>
15708     </rng:optional>
15709     <rng:optional>
15710       <rng:ref name="table-shapes"/>
15711     </rng:optional>
15712     <rng:ref name="table-columns-and-groups"/>
15713     <rng:ref name="table-rows-and-groups"/>
15714     <rng:optional>
15715       <rng:ref name="table-named-expressions"/>
15716     </rng:optional>
15717   </rng:element>
```

ODF 1.3 XML:

- 606 XML Elements
 - 1317 XML Attributes
- > 18k lines

ODF GRAMMAR - TEXT

ANALYZE GRAMMAR
GENERATE SOURCES



Generation of ODFDOM sources

- Java class for each **XML Elements**
- Java class for each **XML Attributes**

ODF 1.3 XML:

- 606 **XML Elements**
 - 1317 **XML Attributes**
- > 18k lines

SOURCES GENERATED FOR ODF XML

ONE NAME

DIFFERENT CONTENT

DIFFERENT PARENT



Beyond parent <manifest:manifest>

```
189 <rng:element name="manifest:manifest">
201 <rng:attribute name="manifest:version">
202   <rng:value>1.3</rng:value>
203 </rng:attribute>
```

Two possibilities for
@manifest:version

- "1.3"
- String

Beyond parent <manifest:file-entry>

```
119 <rng:element name="manifest:file-entry">
149   <rng:optional>
150     <rng:attribute name="manifest:version">
151       <rng:ref name="string"/>
152     </rng:attribute>
153   </rng:optional>
```

SOURCES GENERATED FOR ODF XML

ONE NAME
DIFFERENT CONTENT
ONE PARENT



Same parent <manifest:key-derivation>

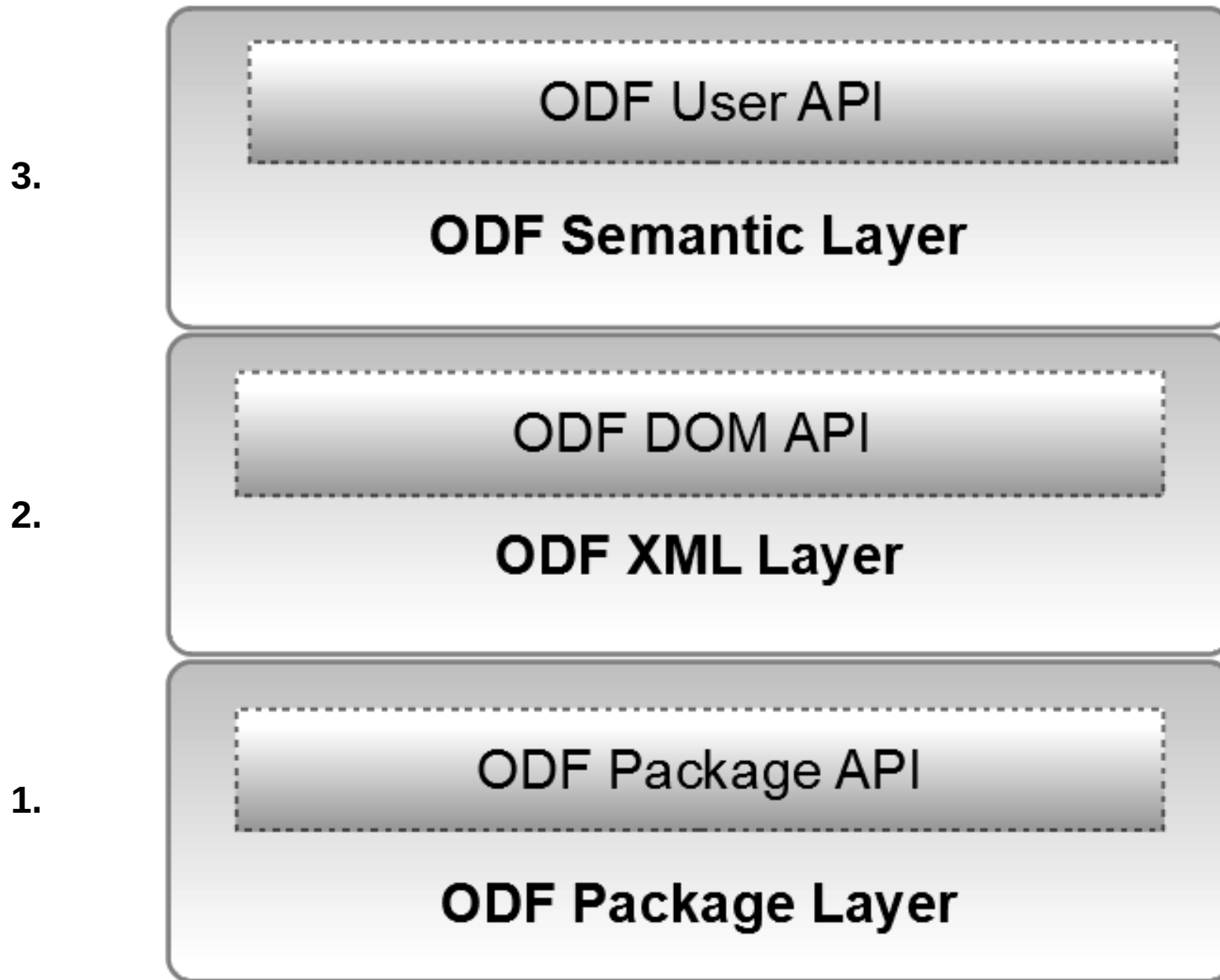
```
163 <rng:choice>
164   <rng:attribute name="manifest:key-derivation-name">
165     <rng:value>PGP</rng:value>
166   </rng:attribute>
167   <rng:interleave>
168     <rng:attribute name="manifest:key-derivation-name">
169       <rng:choice>
170         <rng:value>PBKDF2</rng:value>
171         <rng:ref name="anyURI"/>
172       </rng:choice>
173     </rng:attribute>
174     <rng:attribute name="manifest:salt">
175       <rng:ref name="base64Binary"/>
176     </rng:attribute>
177     <rng:attribute name="manifest:iteration-count">
178       <rng:ref name="nonNegativeInteger"/>
179     </rng:attribute>
180   </rng:interleave>
181   <rng:optional>
182     <rng:attribute name="manifest:key-size">
183       <rng:ref name="nonNegativeInteger"/>
184     </rng:attribute>
185   </rng:optional>
186 </rng:choice>
```

@manifest:key-derivation-name

- Value „PGP“ →
no other attributes
- Value „PBKDF2“ or anyURI →
3 other attributes

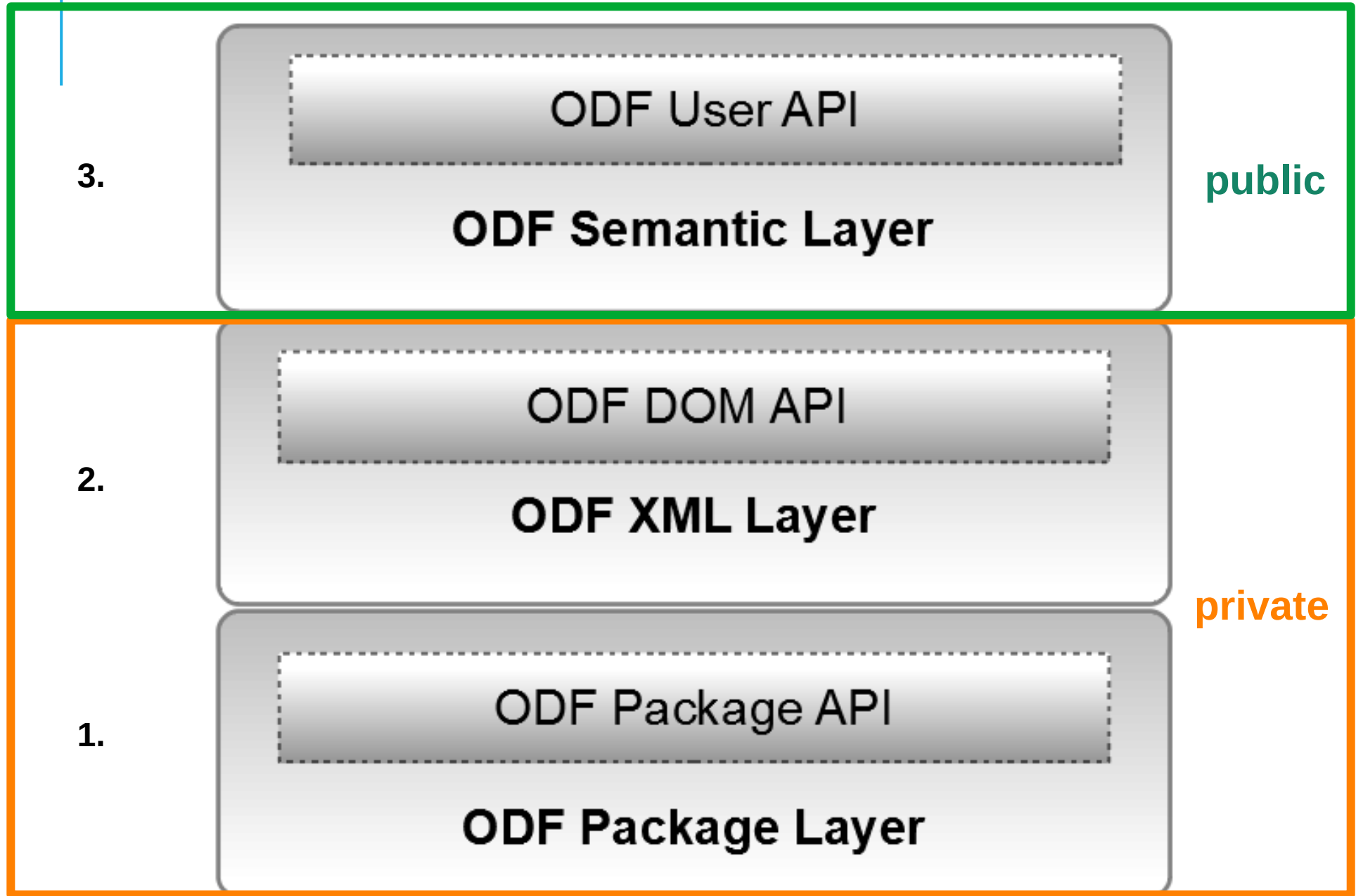
ODFDOM

Architecture



ODFDOM

Architecture (in spe)



ODF Toolkit

Resources

- **Website:**

<https://odftoolkit.org/>

<https://tdf.github.io/odftoolkit/docs/> (latest)

- **Sources:**

<https://github.com/tdf/odftoolkit>

- **Online Validator (hosted by TDF)**

<https://odfvalidator.org/>

- **ODF Specification**

<http://docs.oasis-open.org/office/OpenDocument/v1.3/os/>

- **ODF Specification Tooling**

<https://github.com/oasis-tcs/odf-tc/>