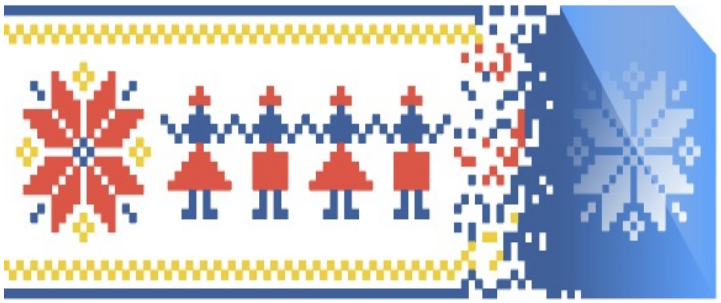


LibreOffice Conference BUCHAREST

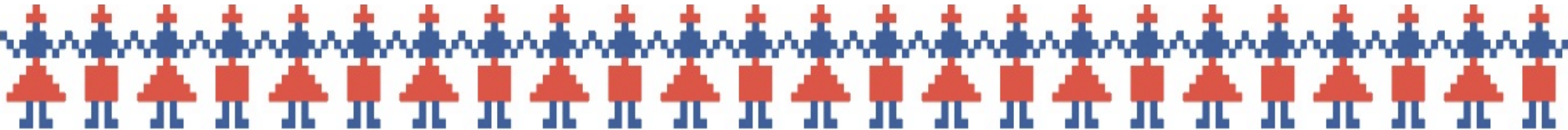
LibreOffice The Document Foundation

ODF and its Toolkit

Svante Schubert

ODP

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 lowering costs (e.g. share tests & validator)
- A standard is usually published as PDF (digital stone)
  Unfortunately no digitalisation for software standards, yet

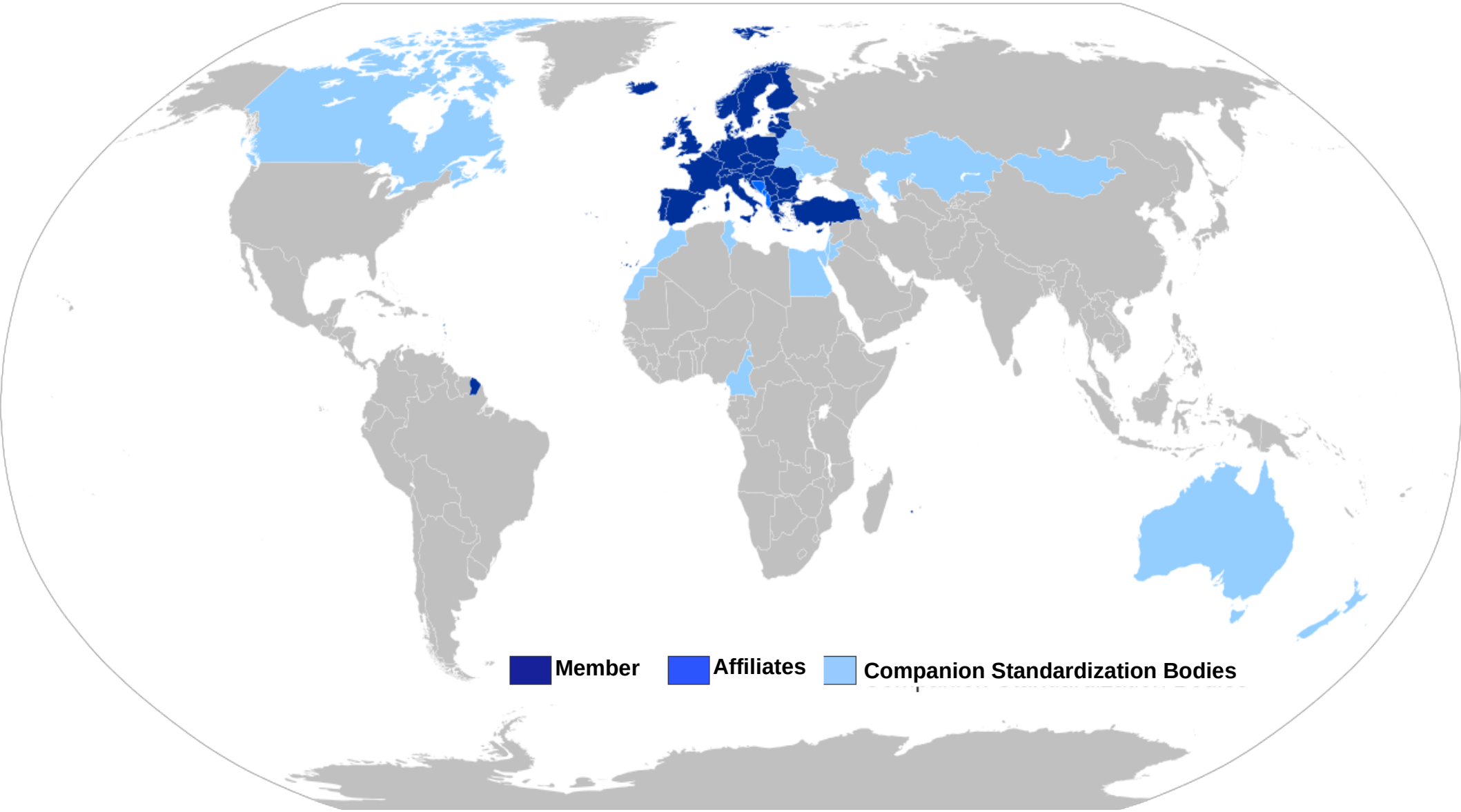
Digitalisation

In a Nutshell - Automation

- Everbody 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?

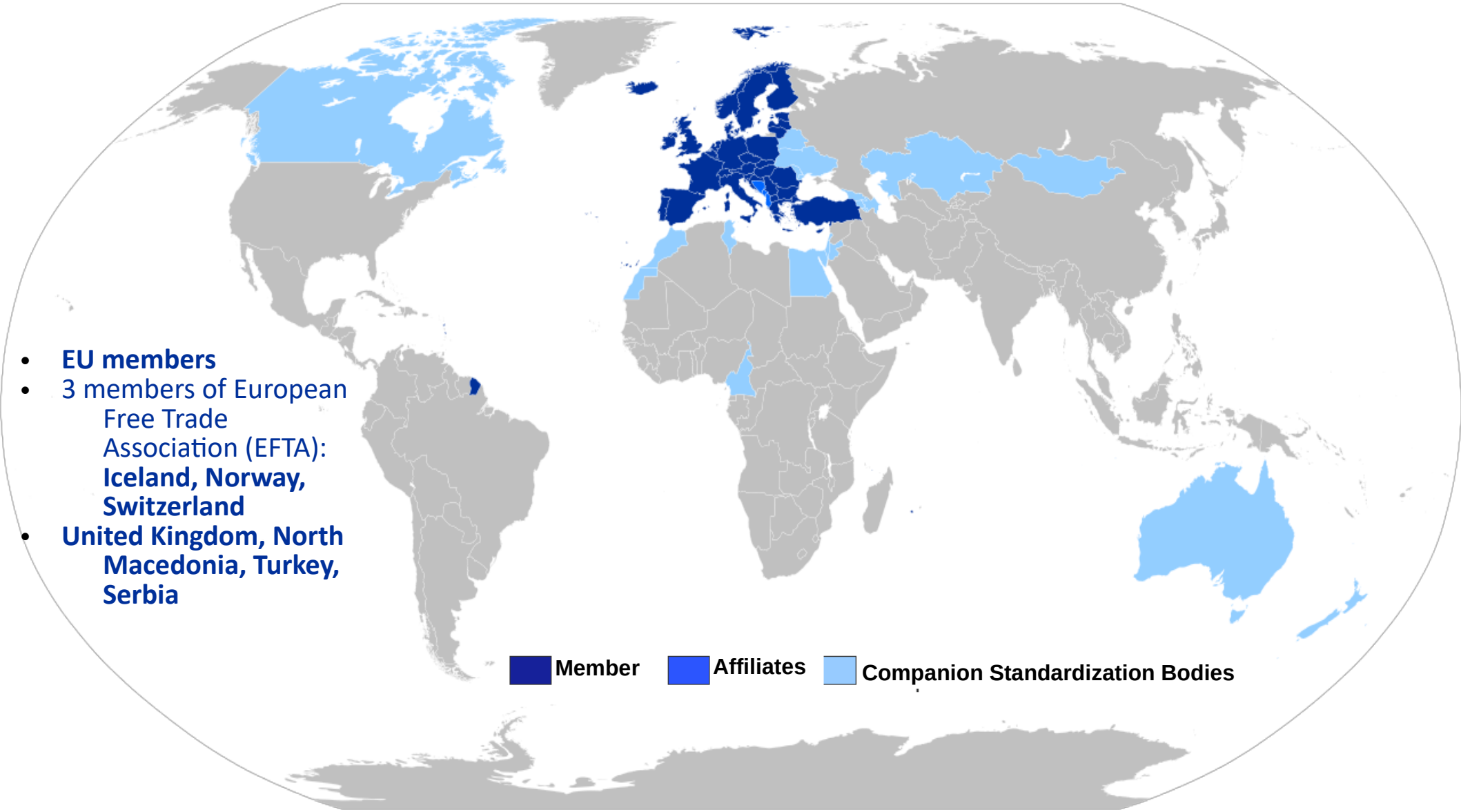
Who is CEN (Comité Européen de Normalisation)?



What is an EU Standard?

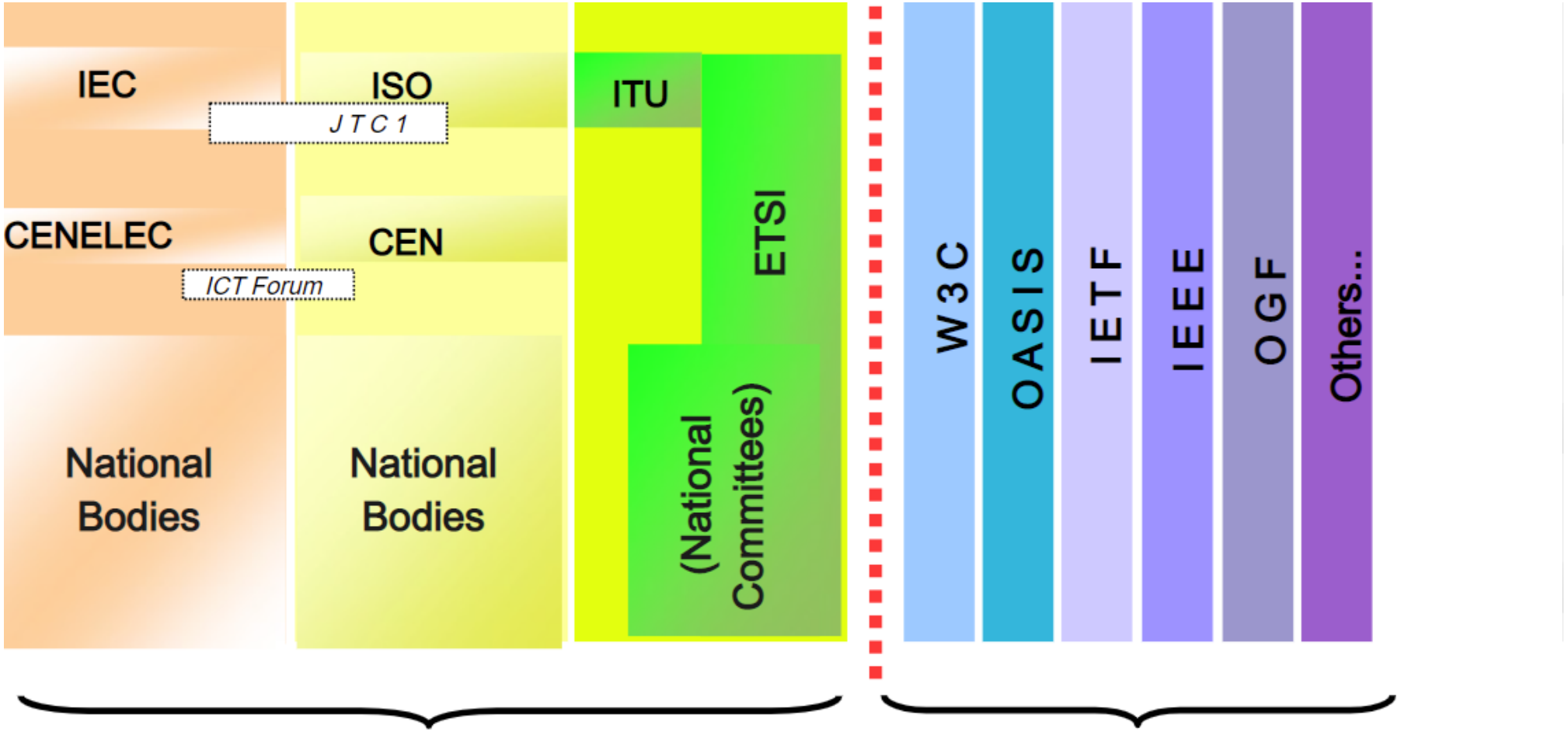
Who is CEN (Comité Européen de Normalisation)?

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



What is EU ICT Standardisation?

Information and Communication Technologies (ICT)



European Standardisationsystem

Outside of Scope (not directly useable)

Obligatory by EU Regulation 1025/2012

What is EU ICT Standardisation?

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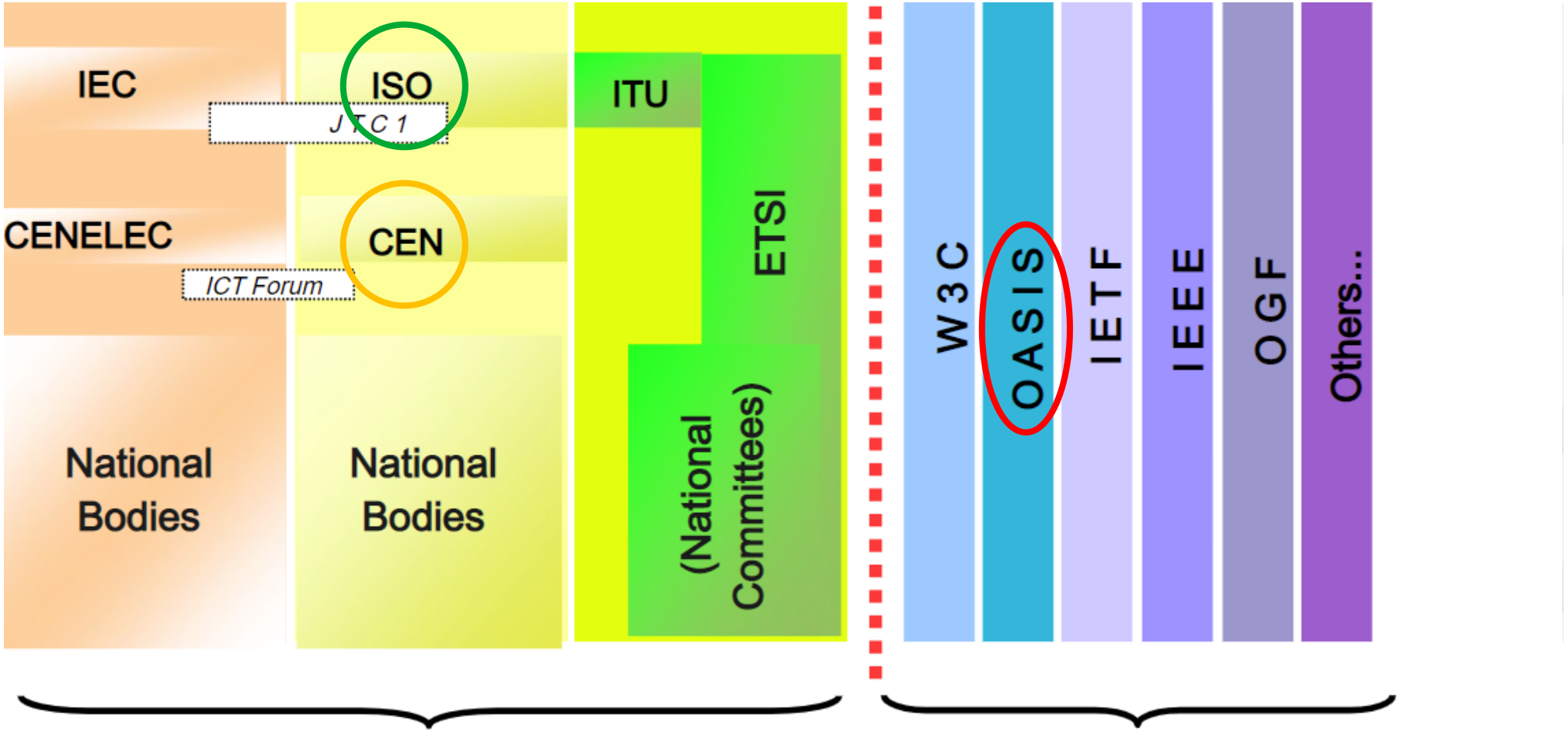

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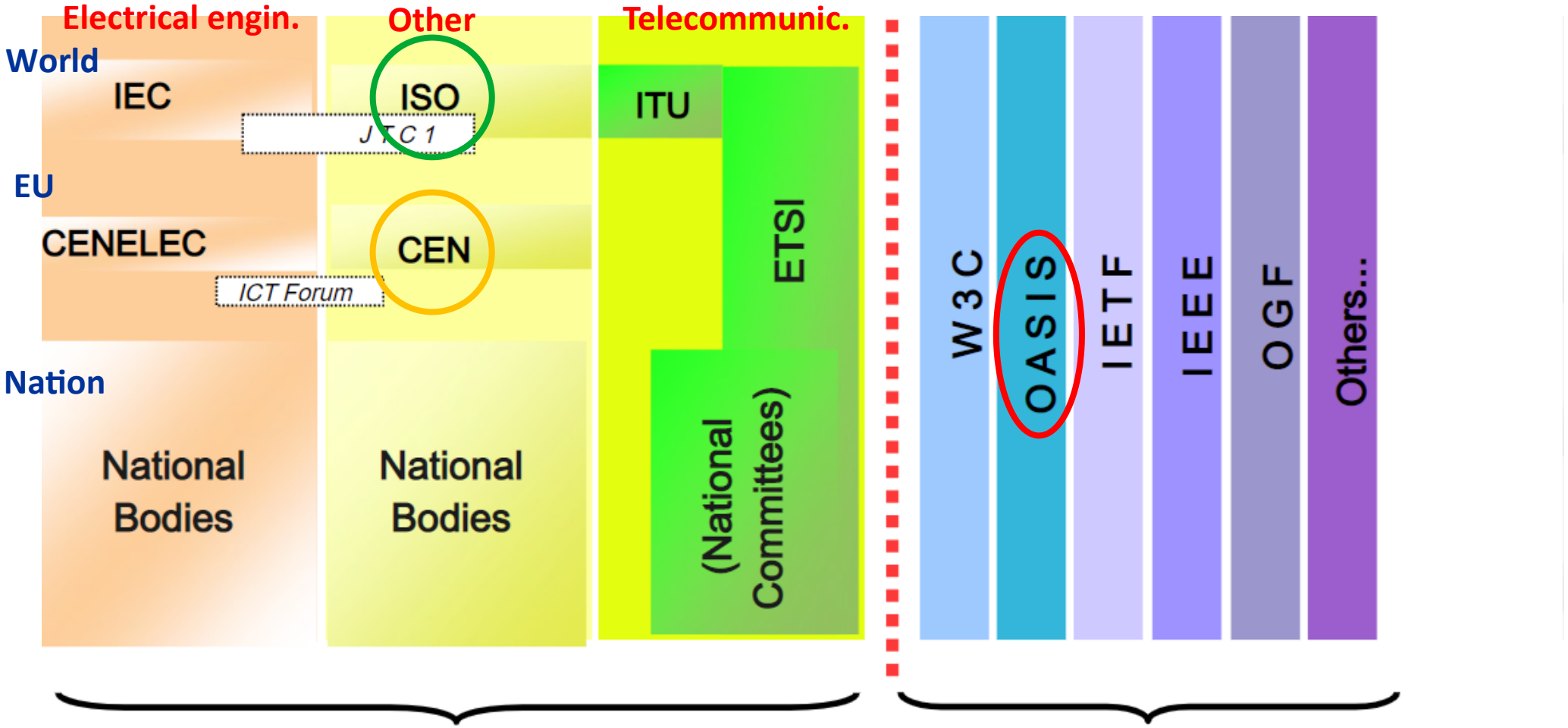

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OASIS and ISO ODF Standard

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 editoral 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**]
- Michael Stahl [**OASIS TC editor**] (*allotropia*)
- Regina Henschel (*TDF*)
- 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.

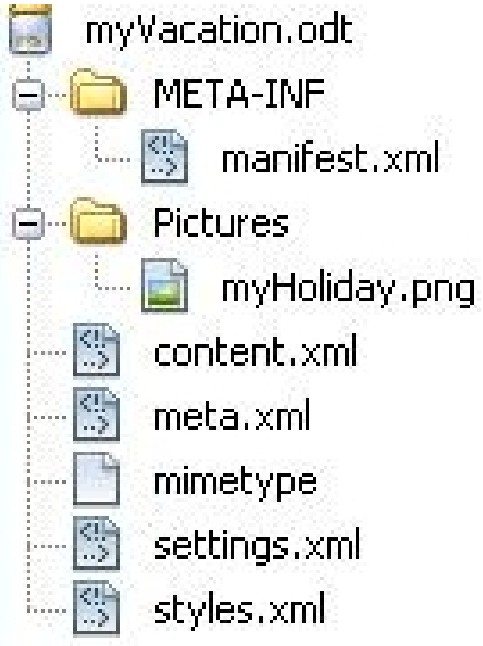
The `<form:property>` element has no child elements.

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)

https://docs.oasis-open.org/office/OpenDocument/v1.3/os/

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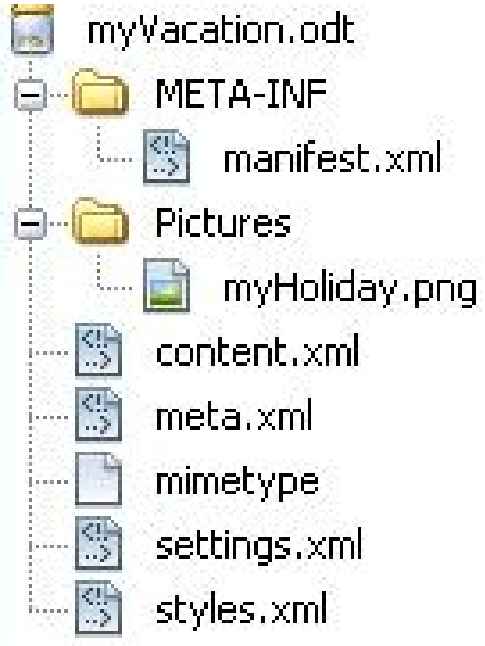


- **ODF Package**
  (OASIS spec. part 2)
- **ODF XML**
  (OASIS spec. Part 3)

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

https://docs.oasis-open.org/office/OpenDocument/v1.3/os/

Basics

What is Semantik & Syntax?

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

Office Document Semantics

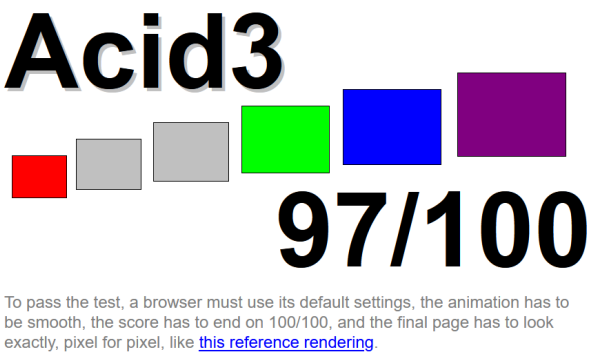
Features and Subfeatures

- Required to split complexity: How to eat an elefant?
- 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



Document Standards

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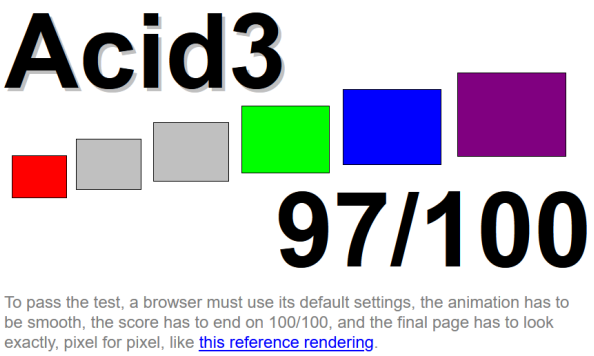
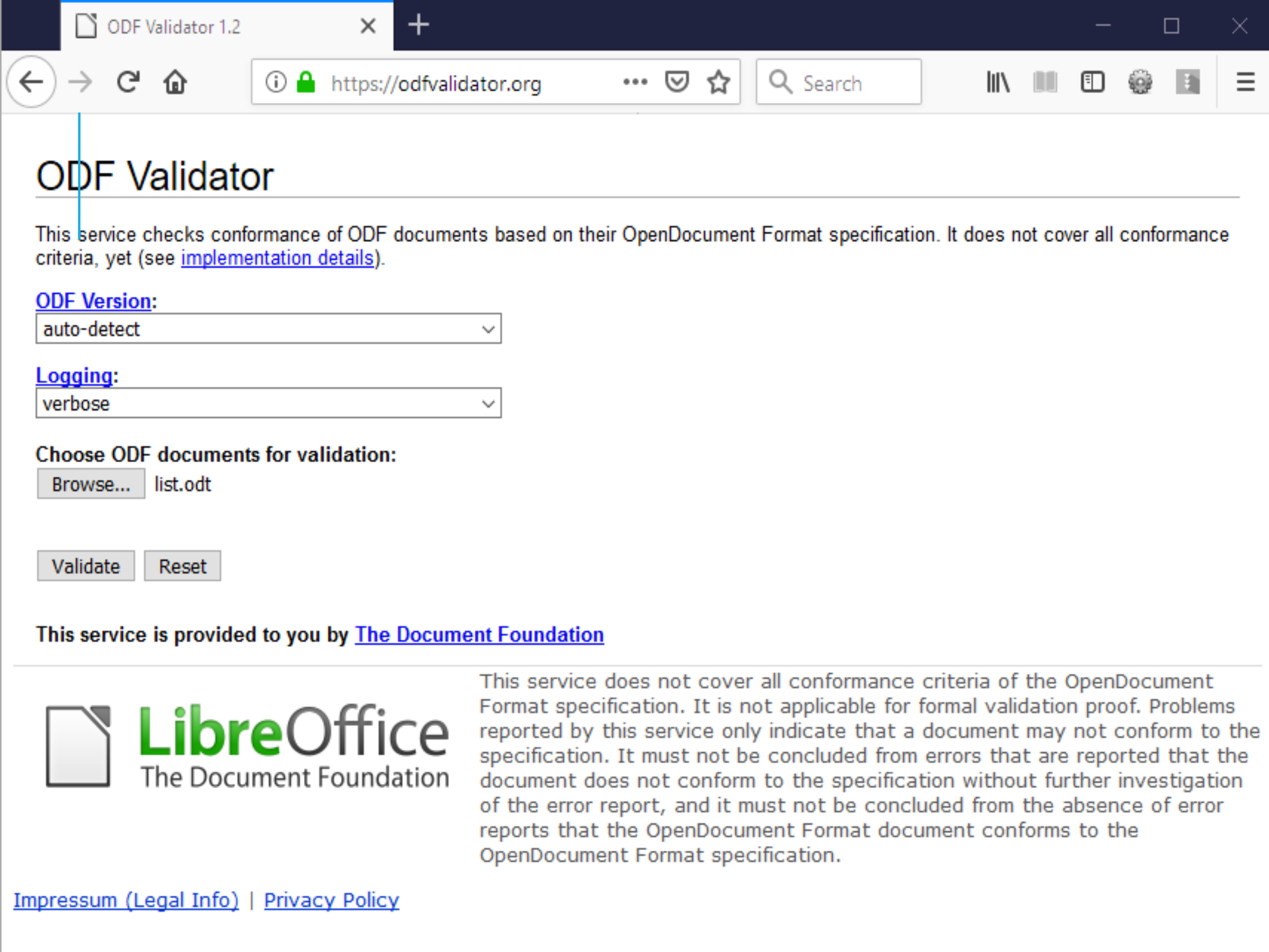


- Remember Change Tracking becomes easier after defining Changes!
- Are such interoperable Tests / Macros / API desired?

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 1.2
https://odfvalidator.org
Search
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:
Browse...
list.odt
Validate
Reset
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.
Impressum (Legal Info) | Privacy Policy

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)

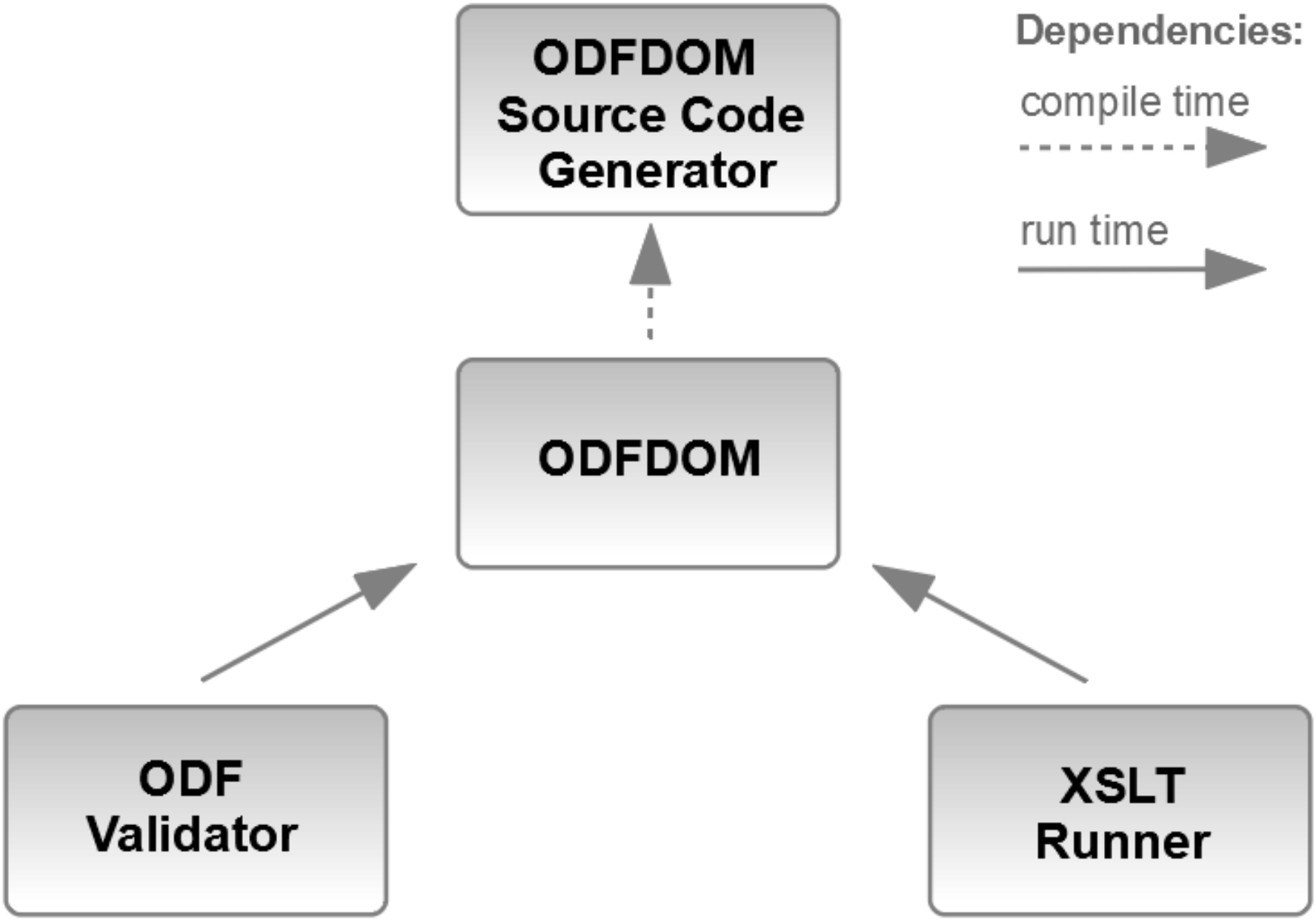
- Editing an ODF document (e.g. Cloud)
  - by API without Layout
  - for Data Insertion (e.g. by Database)
  - for Data Extraction (e.g. Translation)

- 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

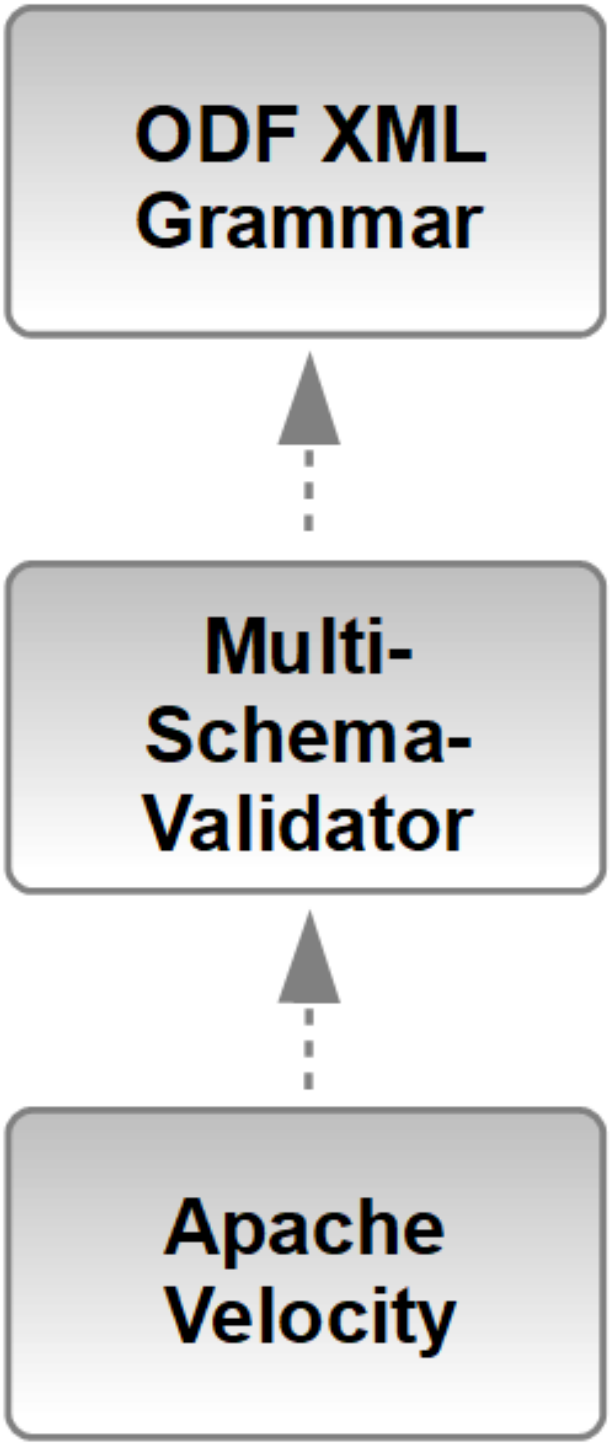
ODF Toolkit

Architecture



ODFDOM Source Code Generator

Architecture



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

XML Valdiator -
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>
```

OASIS OPEN

ODF 1.3 XML:

- **606 XML Elements**
- **1317 XML Attributes**

>18k lines

https://docs.oasis-open.org/office/OpenDocument/v1.3/os/schemas/OpenDocument-v1.3-schema-rng.html

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

https://docs.oasis-open.org/office/OpenDocument/v1.3/os/schemas/OpenDocument-v1.3-schema-rng.html

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 possibilites 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>
```

https://docs.oasis-open.org/office/OpenDocument/v1.3/os/schemas/OpenDocument-v1.3-manifest-schema-rng.html

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:optional>
181         <rng:attribute name="manifest:key-size">
182           <rng:ref name="nonNegativeInteger"/>
183         </rng:attribute>
184       </rng:optional>
185     </rng:interleave>
186   </rng:choice>
```

@manifest:key-derivation-name

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

https://docs.oasis-open.org/office/OpenDocument/v1.3/os/schemas/OpenDocument-v1.3-manifest-schema-rng.html#key-derivation-attlist

ODFDOM

Architecture

3. ODF User API

   ODF Semantic Layer

2. ODF DOM API

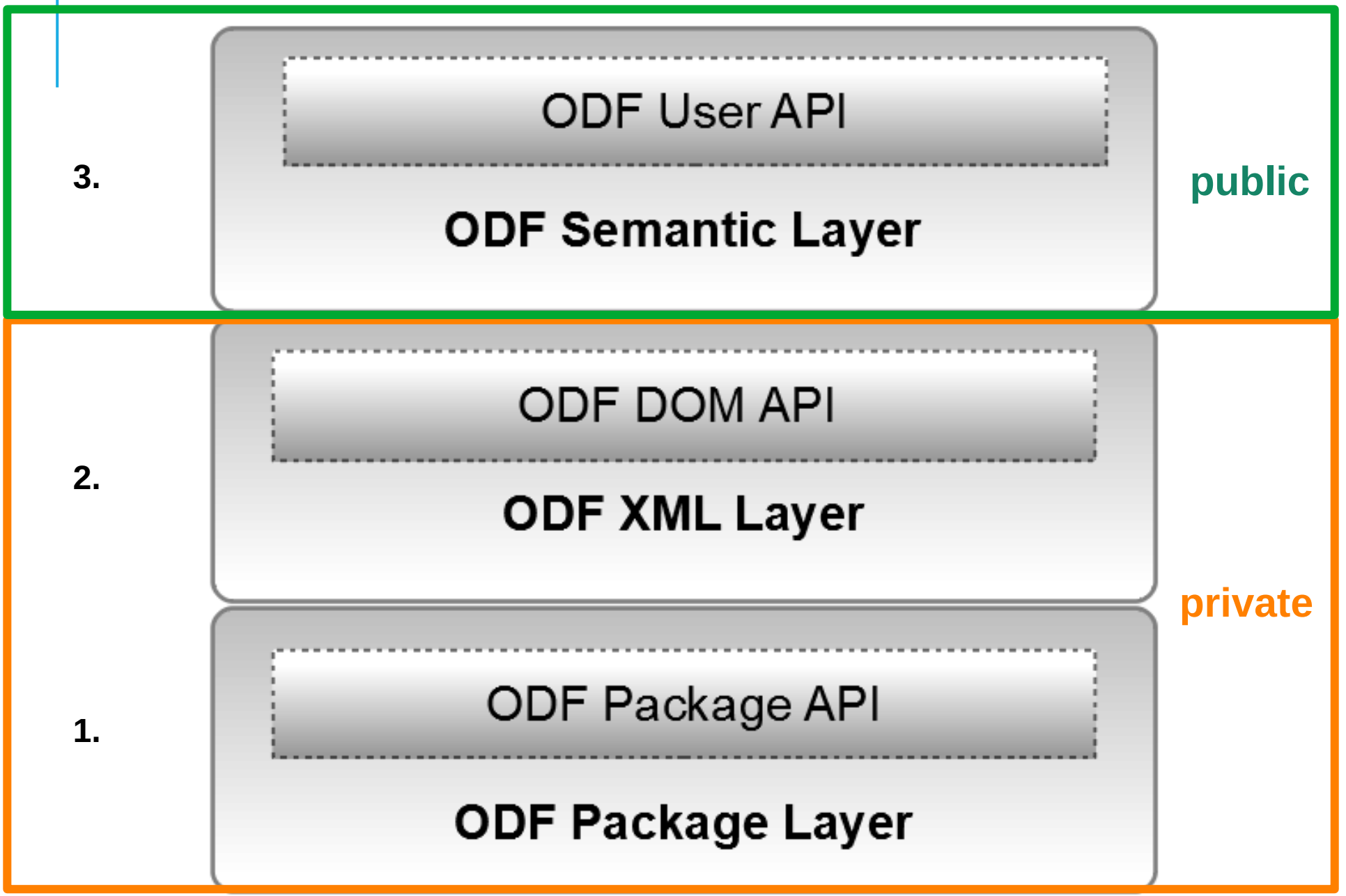
   ODF XML Layer

1. ODF Package API

   ODF Package Layer

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/