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Standardization documents — Document metamodel

THE CALENDARING AND SCHEDULING CONSORTIUM
TC VCARD

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CALCONNECT STANDARD

WORKING DRAFT

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FOREWORD

The Calendaring and Scheduling Consortium (“CalConnect”) is a global non-profit organization with the aim to facilitate interoperability of collaborative technologies and tools through open standards.

CalConnect works closely with international and regional partners, of which the full list is available on our website (<https://www.calconnect.org/about/liaisons-and-relationships>).

The procedures used to develop this document and those intended for its further maintenance are described in the CalConnect Directives.

In particular the different approval criteria needed for the different types of CalConnect documents should be noted. This document was drafted in accordance with the editorial rules of the CalConnect Directives.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CalConnect shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be provided in the Introduction.

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This document was prepared by Technical Committee *VCARD*.

INTRODUCTION

General

Standardization documents are documents created to express a set of normalized requirements, often themselves created through a process of standardization.

Standardization documents play a crucial role in today's activities. Rule-based enforcements from the organization of markets, conformance of products to the compliance of regulation and requirements, all depend on content expressed through standardization documents.

Challenges

The process of generating standardization documents is increasingly problematic due to the increased work burden on standardization bodies.

Often, concerns are raised over both the efficiency and the effectiveness of the workflows around generating standardization documents in those bodies and elsewhere. Some practices include:

- Rigorous and detailed rules around document structure articulated by standardization bodies are being manually validated by the editorial teams, with mixed and often inconsistent results.
- Editing of documents substantially revolves around standardizing use of particular software, instead of requirements, with all the problems that conflating document structure and presentation introduce.
- The authoring and editorial processes spend significant amounts of time on formatting rather than document content, and is vulnerable to error.
- Existing exchange mechanisms for documents have been claimed to focus on document appearance, rather than document structure, and so do not alleviate the formatting burden on the editorial process.
- Standardization bodies often demand vastly different workflows that take different inputs. Submitting identical content or cross-publishing to more than one standardization body requires replicating a significant amount of work.

Data-centric approach

The *StandardDocument* document metamodel aims to treat a standardization document as a set of standardized data structures, used to enable an end-to-end standardization document production process.

The process is centered around the *StandardDocument* document model, designed to focus on semantics and encompasses core similarities between standardization documents of different standardization bodies.

This approach has the following benefits:

- The approach enables an end-to-end, author-to-publishing workflow, with well-managed data artefacts along each stage, that editorial bodies can exercise appropriate control over. This allows document management processes to be centered around data.
- The semantic nature of the document metamodel (and its specialized models) abstracts away presentation, such as layout and formatting. This allows the authoring and editorial to focus on content.
- The structural and content requirements around standardization documents can be fully captured in the document model, and can therefore be subject to formal validation.
- The document model can be highly similar across different standardization documents, and therefore the content in such documents can be easily repurposed for different standardization bodies with minimal effort.

Compatibility

The document metamodel in this standard has been designed to reflect the needs and expressiveness of existing standardization processes, requirements and outputs of the following standardization bodies:

- ISO and IEC ([ISO/IEC DIR 1](#), [ISO/IEC DIR 2:2018](#))
- ITU ([TTP](#), [ATP](#))
- CalConnect ([CC/DIR 10001](#), [CC/DIR 10002](#))
- IETF ([RFC 7749](#), [RFC 7991](#))
- OGC ([OGC 05-020r26](#))
- NIST Special Publications
- China standards (national, local, industry, social group) ([GB/T 1.1-2009](#))

In many cases, the document model also enables alignment with capabilities of existing document production tools. The document metamodel has already been adopted by a number of standardization bodies listed above.

1. SCOPE

This document provides a document metamodel for standardization documents and describes its alignment to standardization processes.

The following aspects of the document metamodel are out of scope:

- implementation of the document metamodel into a document model;
- derivation and mapping of the reference model to representation formats (such as for serialization); and
- prescription of profiles of the document metamodel for particular standardization bodies.

Example profiles provided for ISO and CalConnect standards in [Appendix A](#) and [Appendix B](#) are presented for informative reasons.

2. NORMATIVE REFERENCES

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

- ISO 639 (all parts), *Codes for the representation of names of languages – Part 1: Alpha-2 code*
- ISO 8601-1, *Date and time – Representations for information interchange – Part 1: Basic rules*
- ISO/IEC 10118 (all parts), *Information technology – Security techniques – Hash-functions – Part 1: General*
- ISO/IEC 14888 (all parts), *Information technology – Security techniques – Digital signatures with appendix – Part 1: General*
- ISO 15924, *Information and documentation – Codes for the representation of names of scripts*
- ISO/IEC Guide 2, *Standardization and related activities – General vocabulary*
- IETF RFC 3986, *Uniform Resource Identifier (URI): Generic Syntax*

3. TERMS AND DEFINITIONS

For the purposes of this document, the following terms and definitions apply.

3.1. standardizing body

body that has recognized activities in standardization

[SOURCE: 4.3]

3.2. document

medium with information recorded on or in it

[SOURCE: 3.1 NOTE 2]

3.3. standardization document

document that provides rules, guidelines or characteristics for activities or their results

Note 1 to entry: Documents such as standards, technical specifications, codes of practice and regulations are considered part of this term.

Note 2 to entry: This term closely corresponds to “normative document” defined in 3.1.

3.4. class

structure containing a description of an entity in terms of its components

3.5. subclass

class (Clause 3.4) which inherits from another class its component descriptions, and optionally adds to them its own component descriptions

3.6. document metamodel

formal specification of the structure of a document model in terms of its components and their arrangement, expressed through *classes* (Clause 3.4)

3.7. document model

formal specification of the structure of a document in terms of its components and their arrangement, expressed through *classes* (Clause 3.4)

3.8. standards model

document model (Clause 3.7) for *standardization documents* (Clause 3.3)

3.9. paragraph

subdivision of running text, normally run on throughout, that is separated from text before and after by a change of line and stands below any chapters or sections (Clause 3.12)

[SOURCE: ISO 5127:2017, Clause 3.5.8.07]

3.10. block

paragraph (Clause 3.9)-level grouping of text

3.11. inline element

grouping of text that can be contained within a *paragraph* (Clause 3.9), including plain strings

3.12. section

hierarchical subdivision of a document, consisting of one or more *blocks* (Clause 3.10), and/or one or more sections

3.13. identifier

a character, or group of characters, used to identify or name an item of data and possibly to indicate certain properties of that item

[SOURCE: [714-21-07](#)]

3.14. term

expression with a particular meaning that is part of the specialized vocabulary of a field

4. ARCHITECTURE

4.1. General

The *StandardDocument* document metamodel is a semantically oriented data model that depends on an underlying document model for implementation.

StandardDocument is closely aligned with the *BasicDocument* model ([CC 36010](#)), but it can be implemented on top of any document model that is compatible with the *BasicDocument* model or satisfies the requirements described in this document.

4.2. Dependent data models

The implementation of the document metamodel relies on the availability of the following data models:

- A document data model that supports modelling of textual content at the block and inline levels, as well as modifications to the document itself.
- Data models for representing bibliographic information and citations for a document.

In this document, the *BasicDocument* document model from [CC 36010](#) is used as an exemplary document model, the *BibliographicItem* and its related data models from [CC 6900](#) are used for representing bibliographic and citation models.

4.3. Structure

The *StandardDocument* document metamodel is expressed hierarchically in the following structure:

- Document representation: the underlying document model, described as *BasicDocument* in this document, is used to express the structure of generic documents (with specific requirements detailed in the *BasicDocument* model from [CC 36010](#));
- Standardization document structure: the *StandardDocument* model is specialized from *BasicDocument*, conveying the structure particular to standardization documents as a class.
- Specific types of standardization documents: the *StandardDocument* model is further specialized into models specific to particular standards. Specific standards models can form the basis in turn of other standards models.

4.4. Underlying document model

The underlying document model must provide the following classes of document element data models:

- Sections. A grouping of elements that can be shown under the table of contents (see the `Section` models in [CC 36010](#))
- Blocks. A grouping of paragraphs or paragraph-levels of text (see `Block` models in [CC 36010](#))
- Inline elements. Groupings of text smaller than a paragraph, including plain strings. (see `InlineElement` and related models in [CC 36010](#))

4.5. Bibliographic and citation models

Standardization documents often contain references to and citations of external information resources, as well as bibliography sections.

The *StandardDocument* model depends on data models that can fully represent:

- metadata of referenced information resources;
- presentation of a referenced information resource; and
- locality of a citation.

For example, if a standardization document needs to adhere to the citation guidelines of [ISO 690](#), data models that facilitate these rules such as [CC 6900](#) should be used.

The `BibliographicItem`, `Citation` and related models from [CC 6900](#) are used in the reference metamodel for its expression of bibliographic references and citations.

4.6. Hierarchical containment

In the document metamodel, the classes are in a strict hierarchical relation:

- Documents consist of sections, which consist of blocks, which consist of inline elements.
- Sections can be nested within sections (e.g. clauses and subclauses).
- Blocks can be nested within blocks (e.g. nested lists).
- Inline elements can be embedded within other inline elements (e.g. bold with italics).

Sections in the *StandardDocument* model are not expected to be siblings of blocks, nor blocks of inline elements.

EXAMPLE

A list (block) is not expected to occur next to inline text within a paragraph. For that reason, paragraphs cannot contain other block elements, such as lists or tables.

NOTE This constraint is adopted from [CC 36010](#), and is not present in XML-based schemas like HTML, TEI-C, or DocBook. It confers the advantage of having a significantly streamlined document model. While this limits some expressive potential, the difference is minor and semantically desired, particularly with regards to the unambiguous rendering of paragraphs.

4.7. Document model specialization

StandardDocument can be specialized in the following ways:

- specializing classes from the *BasicDocument* models;
- specializing classes from the *StandardDocument* models;
- adding new classes;
- changing attributes of a class.

The specialization method is not restricted to adding attributes, as is the case in typical entity subclassing; it can also include removing attributes from a class, changing their obligation and cardinality, and changing their type, including changing enumerations. Attributes can be overruled at any level; for example, standards-specific models routinely enhance the bibliographic model at the base of the hierarchy.

For reasons of clarity, however, renaming classes and attributes should be avoided in specialization.

EXAMPLE

The document model for the Chinese National Standard (“GB Standard”), as described in [GB/T 1.1-2009](#), is structurally modelled after ISO documents, explicitly described as a localization of [ISO/IEC DIR 2:2004](#). Therefore, the Chinese National Standard model is best expressed as a specialization of the ISO Standards model.

5. STANDARDDOCUMENT

5.1. Purpose

The `StandardDocument` model is used to represent a standardization document.

Typically, a standardization document contains at least the following data elements:

- Metadata information;
- Clauses and subclauses;
- Bibliographies;
- Annexes if applicable.

The exact component requirements of a standardization document can differ widely from one standardization body to the next. Specialization is necessary to adopt the `StandardDocument` model for such standardization bodies.

5.2. Structure

The `StandardDocument` model extends the `BasicDocument` modelling of the document by requiring the following specific types of section:

- An optional *boilerplate* section, intended to appear at the front of the document. It consists of content addressing *copyright*, *license*, *legal*, and *feedback* concerns (each as a `StandardHierarchicalSection`: [Clause 7](#)).
- Zero or more optional *preface* sections (each as a `StandardHierarchicalSection`: [Clause 7](#)).
- One or more *sections* (each as a `StandardHierarchicalSection`).
- Zero or more *annexes* (each as a `StandardHierarchicalSection`).
- Zero or more *bibliographies* (each as a `StandardReferencesSections`: [Clause 8](#)).

5.3. Overview

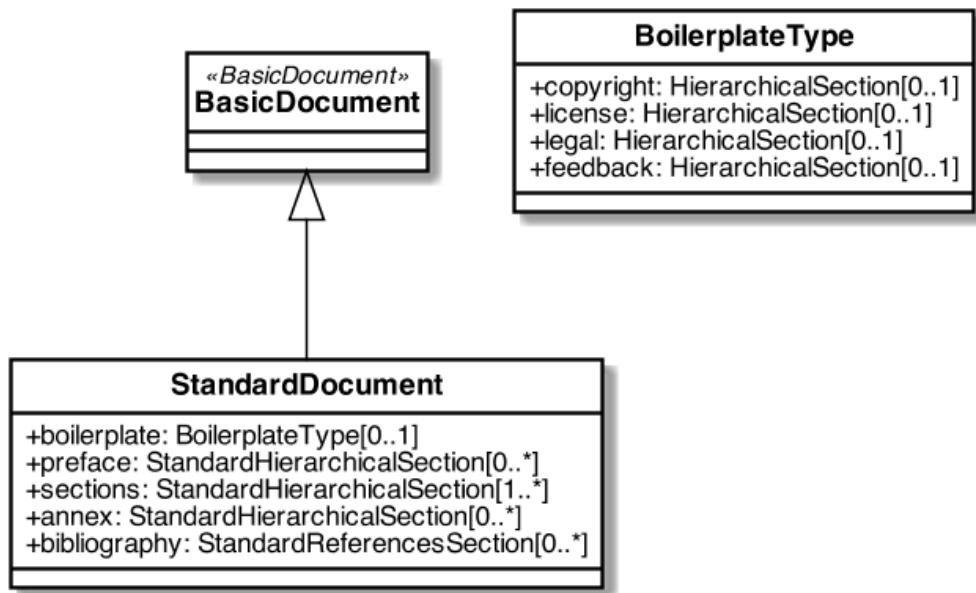


Figure 1 – *StandardDocument* model: Document

6. DOCUMENT METADATA ELEMENTS

6.1. Purpose

Document metadata of a standardization document is used to provide basic information of the standardization document.

This includes data elements such as:

- title(s);
- document identifier(s);
- authorship and contribution information;
- publisher and distributor details;
- rights information;
- document development stage;
- relevant dates; and
- edition.

6.2. Structure

Document metadata in *StandardDocument* is handled using the `StandardBibliographicItem` class extended from the `BibliographicItem` class defined in [CC 6900](#).

In standardization documents, certain data elements, such as document identifiers and document development stage information, are often highly specific to a standardization body.

Therefore, based on `BibliographicItem`, `StandardBibliographicItem` implements the following extension points:

- the document type (already provided in the `BasicDocument` model), it is assumed that particular specializations of the document metamodel will substitute their own enumerations of particular subclasses of document, which will be more granular;
- zero or more structured identifiers ([Clause 6.3](#)).

6.3. Structured identifiers

Standardization bodies often utilize structured, canonical identifiers according to a schema.

Various components of this identifier is meant to be semantically marked up.

The structure given here is meant to be applicable across standardization bodies, but it can always be customized for a specific standardizing body.

This information should all be represented elsewhere in the document metadata, but is replicated in the identifier:

- **type**: type of identifier, used to differentiate different instances of structured identifier generated for different purposes
- **agency**: one or more abbreviations identifying the standardization body involved in producing this standard, and treated as a namespace for the identifier
- **class**: an optional abbreviation identifying the subclass of standard or other document
- **docnumber**: a number or other identifier for the document, issued by the standardizing body
- **partnumber**: an optional part number for the document; includes sub-part numbers if applicable
- **edition**: an optional string giving the edition of the standard
- **version**: an optional string giving the version of the standard (within the edition). Includes the document stage that a draft has reached, e.g. “FDIS” under ISO
- **supplementtype**: an abbreviation for the type of supplement to a standard that this document represents, if applicable
- **supplementnumber**: an abbreviation for the number or other primary identifier of supplement to a standard that this document represents, if applicable
- **year**: an optional string giving the date (typically year) that this particular edition of the standard was published
- **language**: an optional abbreviation identifying the language of the standard.

7. SECTION ELEMENTS

7.1. Purpose

A section represents a clause in a standardization document. Specifically, a section represents a logically coherent group of paragraphs and blocks that is meant to be shown in the table of contents.

7.2. Structure

The `StandardDocument` model is a specialization of the `BasicSection` class of the `BasicDocument` model by as follows:

- All sections in a `StandardDocument` model are instances of the `StandardSection` class, which is a subclass of `BasicSection`.
- The `StandardSection` class indicates its status as normative or informative explicitly, through the `status` attribute. The normative status of individual sections in a standardization document is pertinent.

EXAMPLE

The necessity of indicating normative or informative `status` is specified in [ISO/IEC DIR 2:2018](#) for ISO deliverables.

There are two major types of sections, namely, clause sections and content sections.

7.3. Clause sections

Clause sections (`ClauseSection`) are numbered, and form part of the main flow of the document.

Clause sections are by default hierarchical (as an exception, see [Clause 9](#)). The subclauses of Clauses are themselves Clause Sections; they continue the hierarchical numbering of Clause Sections at deeper hierarchical levels.

7.4. Content sections

Content sections (`StandardHierarchicalSection`) are optionally not numbered, and lie outside the main flow of the document.

In `StandardDocument`, there are four distinctly named content sections. These content sections are designated sections as they recur in standardization documents and have distinct semantics:

- Abstract,
- Foreword,
- Introduction, and
- Acknowledgments.

Specializations of the model may define other such sections.

The subclasses of Content sections are `StandardSections`, and need not be numbered.

7.5. Annex sections

Annexes are implemented as `ClauseSections` in the `StandardDocument` metamodel.

They are, however, expected to be numbered differently, and to be rendered as separate sequences from clause sections.

7.6. Category label

Both section types can have a category label, which allows them to be semantically classified into recurring categories, which may be processed and rendered differently. Indicative values include:

- `executive-summary`,
- `errata`,
- `methods`,
- `requirements`,
- `tests`,
- `reagents`, and
- `tests`.

7.7. Restrictions on hanging elements

Generally, in standardization documents there is a strong need to reference text in clauses unambiguously by clause number, which makes hanging paragraphs undesirable.

Therefore, the `StandardDocument` model requires “hanging paragraphs” to be avoided. In particular, its sections should contain either blocks or subsections, but not both.

NOTE The avoidance of “hanging paragraphs” is also a requirement in ISO/IEC DIR 2:2018.

While this behavior is less pressing for Content sections (which are unnumbered), and Annexes (as exemplified in ISO/IEC DIR 2:2018), it is nonetheless not recommended.

7.8. Overview

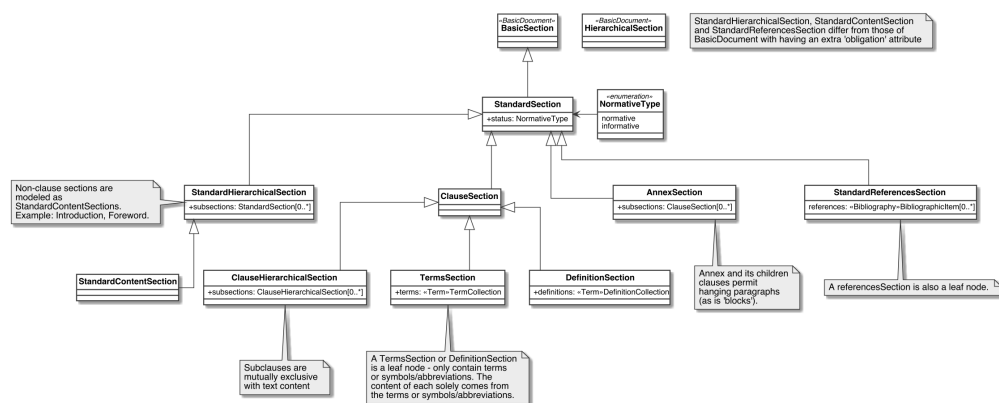


Figure 2 – StandardDocument model: Section

8. CITATION AND REFERENCE ELEMENTS

8.1. Purpose

Standardization documents often cite other documents within, and as a result they usually contain a bibliography section indicating its data sources.

8.2. References section

The `StandardReferencesSection` class within *StandardDocument* is used to represent a bibliography section. It is used to collate references within the document, where there could be one or more of such sections within a document.

For example, some standardization documents differentiate normative or informative references, some split references into sections organized by concept relevance.

The `StandardReferencesSection` class is a specialized class of `StandardSection` ([Clause 7](#)).

Similar to the `ReferencesSection` of the `BasicDocument` model ([CC 36010](#)), they are leaf nodes which contain zero or more bibliographical references (as modelled in [CC 6900](#)), along with any prefatory text.

8.3. Reference item

Each reference item is represented using the *BibliographicItem* class defined in [CC 6900](#).

It is not necessary to specialize reference items amongst documents from different standardization bodies as a document can cite documents of any type.

8.4. Citation

Each citation is represented by the *Citation* class defined in [CC 6900](#).

It is not necessary to specialize citations since it is simply a document data element reference linked to a reference item.

9. TERMS AND DEFINITION ELEMENTS

9.1. Purpose

Standardization documents are used to convey normative information; to achieve so it is imperative to provide a standardized set of terms and definitions.

9.2. General

The `StandardDocument` model provides two further subclasses of clause sections (`ClauseSection`):

- Definition section, and
- Term section.

Both types of section can include prefatory text.

9.3. Definition sections

Definition sections (`DefinitionSection`) consist of one or more definition lists (see [CC 36010](#)), and are used to define symbols and abbreviations used in the remainder of the document.

They can also be used as glossaries, with simple definitions, in contrast to the more elaborate definitions given in terms sections ([Clause 9.4](#)).

In addition to allowing prefatory text per section, each definition list within each definition section can also be preceded by prefatory text.

9.4. Term sections

Term sections (`TermsSection`) give elaborated definitions of terms used in a standardization document.

A `StandardDocument` can contain one or more `TermSections`. Term sections consist of zero or more `Terms`.

NOTE The `TermsSection` definition fully aligns with the structure and requirements of the “Terms and definition” section given in [ISO/IEC DIR 2:2018](#).

9.5. Term

A term (Term) is composed of the following elements:

<code>id</code>	An optional identifier for the term, to be used in cross-references.
<code>preferred</code>	One or more names under which the term being defined is canonically known.
<code>admitted</code>	Zero or more names which are acceptable synonyms for the term being defined.
<code>related</code>	Zero or more names which are related to the term being defined. Each has a type, indicating how the term is related; permitted values are <code>compare</code> (for “see also” references to terms), <code>contrast</code> (for terms that illuminate the term definition as what it is not), <code>see</code> (if this is a deprecated term, to reference the preferred term)
<code>deprecates</code>	Zero or more names which are deprecated synonyms for the term being defined.
<code>domain</code>	An optional semantic domain for the term being defined, in case the term is ambiguous between several semantic domains.
<code>grammar</code>	Zero or more abbreviations giving grammatical information about the term (e.g. part of speech, gender)
<code>definition</code>	The definition of the term applied in the current document.
<code>note</code>	Zero or more notes about the term.
<code>example`</code>	Zero or more examples of how the term is to be used.
<code>source</code>	Zero or more bibliographical sources for the term. These include the <code>origin</code> of the term, which is its bibliographical citation (as defined in CC 6900); the <code>status</code> of the definition (whether <code>identical</code> to the definition given in the origin cited, or <code>modified</code>); and, if the definition is modified, a description of the <code>modification</code> to the definition applied for this document.

NOTE The Term definition fully aligns with the structure and requirements of terms in [ISO/IEC DIR 2:2018](#).

9.6. Nested sections

Both definition and term sections are leaf nodes, and cannot contain subclauses of their own.

Nested definition and term sections should be modelled as `ClauseSections` with subclauses, terminating in definition and term sections.

9.7. Overview

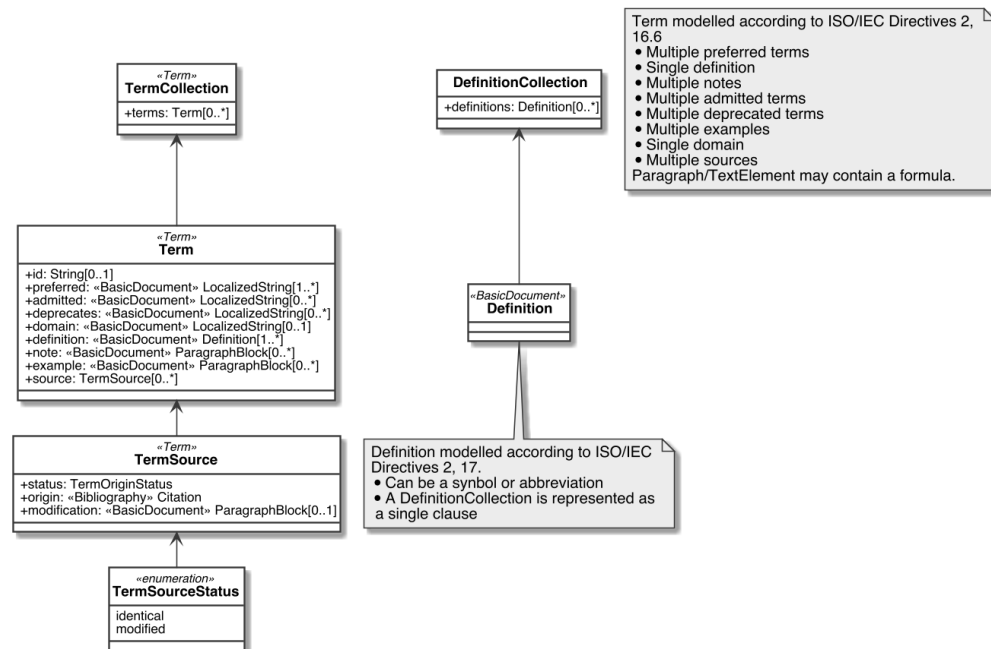


Figure 3 – *StandardDocument* model: Term Section and Definition Section

10. INLINE ELEMENTS

StandardDocument's inline elements adhere to the inline element models from `BasicDocument`.

Specializations and profiles of the StandardDocument model may specialize the modelling of inline elements.

11. BLOCK

StandardDocument's block elements adhere to the block element
`BasicDocument` model and the StandardDocument model.

Specializations and profiles of the StandardDocument model may specialize the modelling of blocks.

12. DATA TYPES

Data types in `StandardDocument` models are fully inherited from those of the `BasicDocument` model.

Specializations and profiles of the `StandardDocument` model may specialize and extend the modelling of data types.

APPENDIX A (NORMATIVE) PROFILE: ISO STANDARDIZATION DELIVERABLES

A.1. General

This profile provides the specialization of the *StandardDocument* document metamodel for ISO standardization deliverables described in [ISO/IEC DIR 2:2018](#).

The *ISOStandardDocument* model fully covers all ISO standardization deliverables, including International Standards, Guides, Technical Reports, Technical Specifications, International Workshop Agreements, Amendments and Corrigenda.

A.2. Document and section specialization

The *ISOStandardDocument* model extends the *StandardDocument* modelling of the document by requiring the following specific types of section:

- A *Preface*, consisting of a mandatory *Foreword* (a *BasicSection*: [CC 36010](#)), and an optional *Introduction* (a *ClauseSection*: [Clause 7](#), since an ISO Introduction can optionally have numbered subsections).
- One or more Clause Sections ([Clause 7](#)).
- Zero or more Annexes ([Clause 7](#)).

Annexes in the *ISOStandardDocument* can optionally contain one or more *Appendixes*, which can be thought of as annexes of the annex section.

NOTE Appendixes are not defined in [ISO/IEC DIR 2:2018](#), but they appear in the companion standard [ISO/IEC DIR 1](#). For example, Annex SL of [ISO/IEC DIR 1](#) includes Appendix 1, Appendix 2, and Appendix 3; Appendix 2 “High level structure, identical core text, common terms and core definitions” itself contains an Introduction and 10 clauses, including a Terms clause.

The *ISOStandardDocument* model document also includes zero or more *termSources* elements, giving the citations for the documents that the Terms Section draws on for its definitions and repertoire of terms.

The *ISOStandardDocument* model document uses ISO-specific extensions to the [CC 6900](#) metadata about a document ([Appendix A.4](#)).

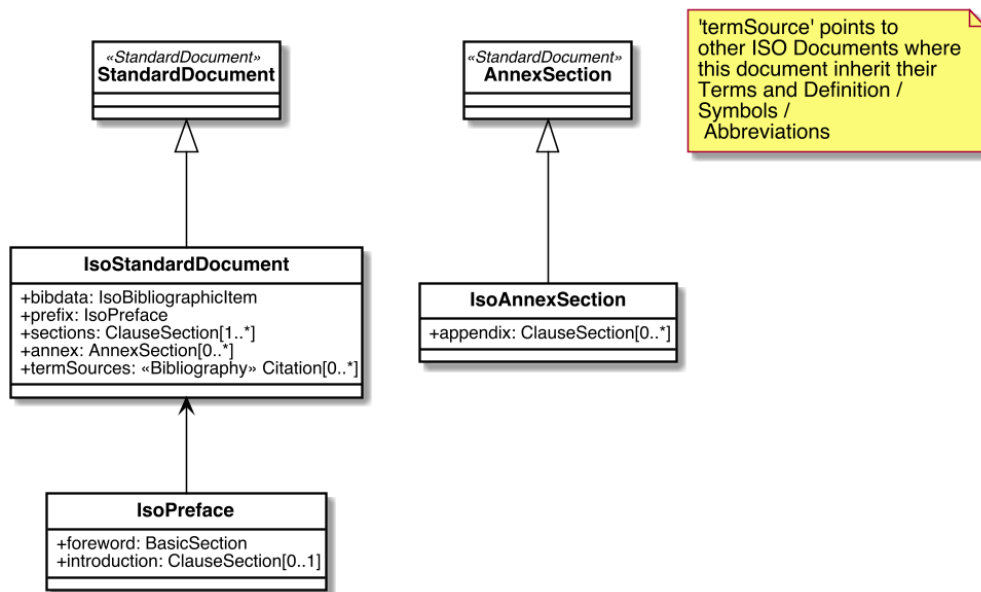


Figure A.1 – ISO Standard Document model: Document

A.3. Block specialization

The **IsoStandardDocument** model extends the **StandardDocument** modelling of blocks for one block definition:

- The types that an Admonition can belong to are overridden to belong to the following set prescribed in [ISO/IEC DIR 2:2018](#):
 - Danger,
 - Caution,
 - Warning,
 - Important,
 - Safety Precaution.

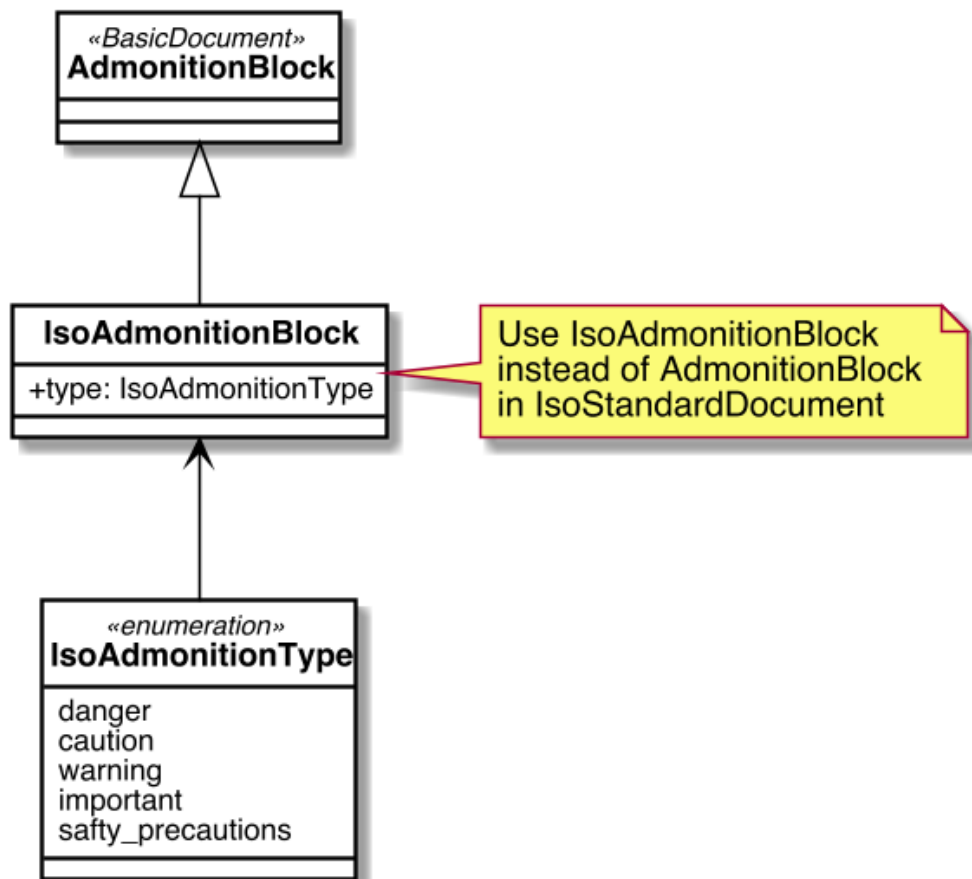


Figure A.2 – ISO Standard Document model: Block

A.4. Document metadata specialization

The `IsoBibliographicItem` model customizes parts of `BibliographicItem` to fully cover representations of ISO standardization deliverables' metadata.

While `BibliographicItem` is intended as a highly generic model, however, it is useful for the metadata describing the current document to be enriched to provide metadata relevant to the standard class.

`IsoBibliographicItem` is enriched compared to `BibliographicItem` as follows:

- The document identifier is refined to contain three optional parts:
 - a project number,
 - a part number, and
 - a technical committee document number.
- The document title is broken down into:

- an optional Introductory component,
- a mandatory Main component, and
- an optional Part component.
- The document type is constrained to be one of the following:
 - International Standard,
 - Technical Specification,
 - Technical Report,
 - Publicly Available Specification,
 - International Workshop Agreement, and
 - Guide.
- The document status is broken down into:
 - an ISO Document Stage code ([ISO International harmonized stage codes](#)),
 - an ISO Document Substage code ([ISO International harmonized stage codes](#)), and
 - an Iteration number.
- The editorial group responsible for the document is defined with four components:
 - a mandatory Technical Committee,
 - an optional Subcommittee,
 - an optional Workgroup, and
 - an optional Secretariat.

The Technical Committee, Subcommittee and Workgroup, in turn, are instances of the ISO Subgroup class, defined as having a name, an optional type, and an optional number.

- The document has one or more International Classification for Standards classifications [ISO International Classification for Standards](#). The ICS classification is defined as a code, and an optional text explaining the code.
- The document has zero or more source URIs.
- The document has an optional abstract.
- The document has an optional “All Parts” boolean attribute, indicating whether the bibliographic description applies across all Part documents under the same project number (which makes it a multi-document description).

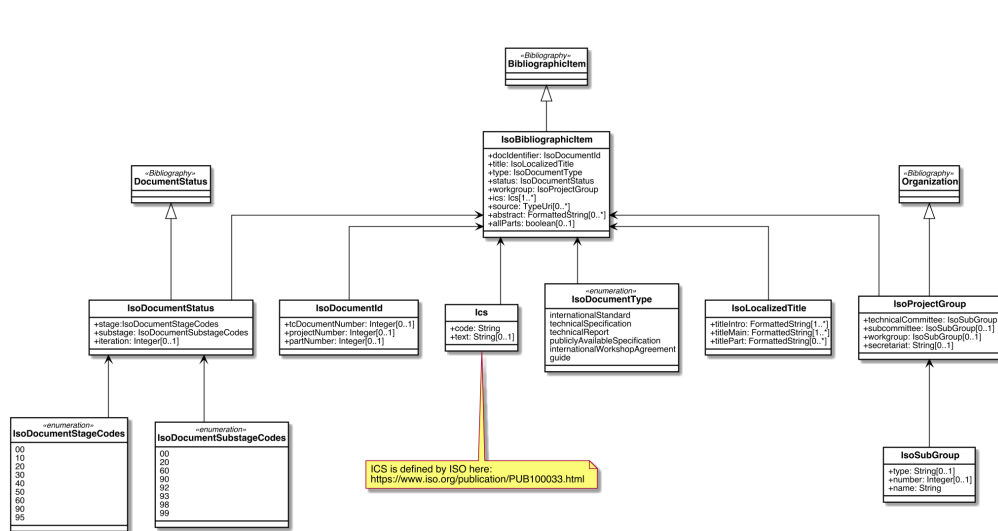


Figure A.3 – ISO Standard Document model: Bibliography

APPENDIX B (NORMATIVE) PROFILE: CALCONNECT STANDARDIZATION DELIVERABLES

B.1. General

This profile provides the specialization of the *StandardDocument* document metamodel for CalConnect standardization deliverables described in [CC/DIR 10002](#).

The *CsdStandardDocument* model fully covers all CalConnect standardization deliverables, including Standards, Reports, Specifications, Directives, Guides, Amendments and Corrigenda.

B.2. Document and section specialization

The *CsdStandardDocument* model extends the *StandardDocument* modelling of the document by requiring the following specific types of section:

- An optional *Foreword* (a *StandardsHierarchicalSection*, see [Clause 7](#)).
- An optional *Introduction* (a *StandardsHierarchicalSection*, see [Clause 7](#)).
- One or more clause sections (see [Clause 7](#)).
- Zero or more Annexes (see [Clause 7](#)).

B.3. Block specialization

The *Block* model is specialized:

- The definition of *Figure* is altered to allow ASCII artwork as an option for its content, as a string (*pre*). As with the sourcecode element ([CC 36010](#)), the string should be treated as pre-formatted text, with whitespace treated as significant.

B.4. Inline elements specialization

The *CsdStandardDocument* model extends the *StandardDocument* modelling of inline elements by one element:

- The *keyword* element is added as a subclass of *Text Element* ([CC 36010](#)). The element is used to represent code keywords, as with *code* in HTML, and should be rendered in monospace.

B.5. Document metadata specialization

The bibliographic modelling of CalConnect documents is further enriched compared to `BibliographicItem` as follows:

- The document type is constrained to be one of the following:
 - Standards,
 - Reports,
 - Specifications,
 - Directives,
 - Guides,
 - Amendments,
 - Corrigenda and Administrative.
- The document status is constrained to be one of the following:
 - Proposal,
 - Working Draft,
 - Committee Draft,
 - Final Draft,
 - Published,
 - Withdrawn.
- The editorial group responsible for the document is defined with a single components: a mandatory Technical Committee. The Technical Committee has a type of either `Technical` or `Provisional`.

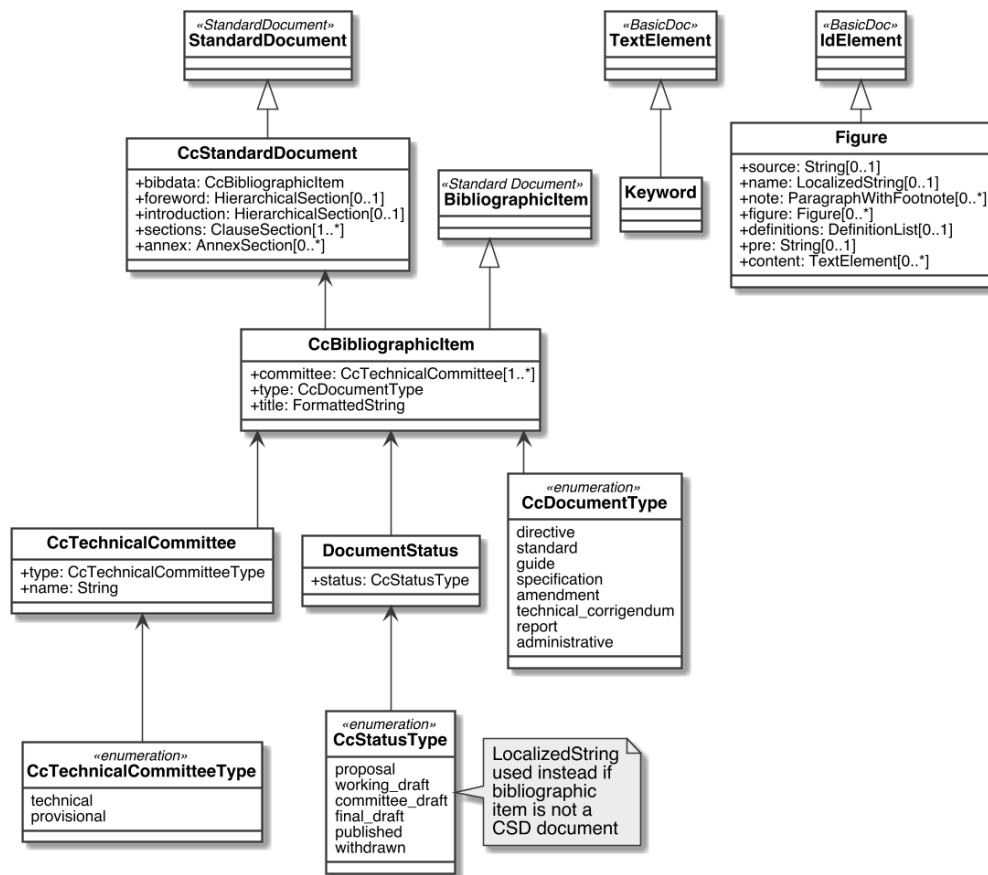


Figure B.1 – CalConnect Standard Document model

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¹In draft