BS EN 15943:2011

BSI Standards Publication

Curriculum Exchange Format (CEF) — Data model

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National foreword

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The UK participation in its preparation was entrusted to Technical Committee IST/43, Information technology for learning, education and training.

A list of organizations represented on this committee can be obtained on request to its secretary.

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ISBN 978 0 580 67329 0

ICS 35.240.99

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 July 2011.

Amendments issued since publication

Date	Text affected

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 15943

April 2011

ICS 35.240.99

English Version

Curriculum Exchange Format (CEF) - Data model

Format d'échange de curriculum (CEF) - Modèle de données

Curriculum-Austauschformat (CEF) - Datenmodell

This European Standard was approved by CEN on 3 March 2011.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: Avenue Marnix 17, B-1000 Brussels

Ref. No. EN 15943:2011: E

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Foreword

This document (EN 15943:2011) has been prepared by Technical Committee CEN/TC 353 “Information and Communication Technologies for Learning, Education and Training”, the secretariat of which is held by UNI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 2011, and conflicting national standards shall be withdrawn at the latest by October 2011.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This European Standard for a Curriculum Exchange Format (CEF) specifies a data model in a thesaural based format for exchanging vocabularies relating to curriculum information. It is based partially on an extended application profile of Zthes version 1.0 [http://zthes.z3950.org] but is not restricted to Zthes as an exchange format. It has been produced in the light of implementation experience and the CEF requirements agreed in the CEN Workshop Agreement - Curriculum Exchange Format (CWA 16078, CEN/WS LTS N 576, January 2010).

There are three main sets of information in the CEF:

— information about the whole CEF instance. This is provided using properties from Dublin Core plus some extensions. Information includes date, title, description and identifier;

— CEF terms. Information including the term name, identifier and type. Though “term” is used throughout as the name for an item in a CEF instance, the model can equally well be used to describe a conceptual approach;

— relationships between terms as a sub-record of a term.

Further information about the background and guidelines on usage can be found in CWA 16078.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This European Standard is applicable to the digital exchange of information about terms or concepts relating to curriculum information. This includes values to be used in metadata to describe learning resources and learner profiles.

The main uses of CEF instances and related services are expected to be the provision of:

— controlled vocabularies;

— navigation structures;

— additional curriculum information;

— mappings.

2 Data model

2.1 Table headings

Label = the preferred name of an element to be used in bindings such as XML. These may vary depending on the binding used.

Occ = number of occurrences and obligation. The figure in brackets is the smallest permitted maximum – that is the minimum number of values (for repeatable elements) a conforming **application** shall support. It is assumed that when an upper limit is given that is the smallest permitted maximum.

Name = the recommended English name that can be presented to users. Some names may not be needed, as they can be implicit in the way that information is presented. A CEF schema could provide alternative names in other languages.

2.2 CEF Information

This data model explains the use of various elements (or properties). It does not indicate the order of elements.

The following elements are used to describe a Curriculum Exchange Format instance.

Table 1 — Elements to describe a Curriculum Exchange Format instance

Label	Occ	Name	Value space	Description
`dc:title`	1	CEF Title	`stringOrLangstring`	The name of the CEF instance.
`dc:creator`	0..*	Creator	`stringOrLangstring`	The name of the creator of the CEF instance.
`dc:subject`	0..*	Subject	`stringOrLangstring`	The topic areas covered by the CEF instance.

Table 1 *(continued)*

Label	Occ	Name	Value space	Description
dc:description	0..*	Description	stringOrLangstring	A description of the CEF instance.
dc:publisher	0..*	Publisher	stringOrLangstring	The name of the publisher of the CEF instance.
dc:contributor	0..*	Contributor	stringOrLangstring	The names of contributors to the CEF instance.
dc:date	0..1	Publication Date	date	The publication date.
dc:type	0..*	Type	string	The type of CEF instance.
dc:format	0..*	Format	string	The format of the CEF instance.
dc:identifier	1	CEF Identifier	string	The main identifier for the CEF instance allocated by the authority. If other identifiers are required they can be added using a thesNote with label altId.
dc:source	0..1	CEF Source	string	The source for the CEF instance.
dc:language	0..* (25)	Language	string	The language of the CEF instance (from ISO 639). The primary language first. From a standard controlled vocabulary (two or three letter with extensions). To be specified by the scheme attribute.
dc:relation	0..*	Relation	string	Items related to the CEF instance.
dc:coverage	0..*	Coverage	stringOrLangstring	The coverage of the CEF instance.
dc:rights	0..*	Rights	stringOrLangstring	Rights statement governing the usage of the CEF instance.

Table 1 *(continued)*

`resolver`	0..*	Resolver	`url`	The resolution service. A url prefix that provides a resolution url when combined with an identification of a term or vocabulary according to specified rule.
`thesNote`	0..* (10)	Extension	`extension`	This is used for CEF extensions.

2.3 Extensions that are part of CEF

The following are reserved labels for a CEF `thesNote`.

Table 2 — Reserved labels for a CEF `thesNote`

Label	**Occ**	**Name**	**`Value space`**	**Description**
`authority`	0..1	Authority	`extension`	An approved authority that created and 'owns' the CEF instance. Can be used by systems to allocate user permissions.
`version`	0..1	Version	`extension`	The version of the CEF instance.
`purpose`	0..*	Purpose	`extension`	The purpose of the CEF instance taken from a controlled vocabulary that could include: `navigation, mapping, metadata`
`category`	0..*	Category	`extension`	The category or topic that is covered by the CEF instance, for example education or spatial coverage.
`altId`	0..*	Alternative identifer	`extension`	An alternative identifier if required in addition to the main identifier.

2.4 CEF Terms

The following elements are used to describe a Curriculum Exchange Format term.

Table 3 — Elements to describe a CEF Term

Label	Occ	Name	Value space	Description
`termId`	1	Identifier	`string`	An opaque string of characters which uniquely identifies the term within a CEF instance. This could be a URI or a local identifier.
`termName`	1	Name	`stringOrLangstring`	The name of the term in a form that may be displayed to a user or used as a search term in a target database.
`relation`	0..* (100)		`sub-record`	A sub-record briefly describing one or more terms related to this one.
`termCategory`	0..* (10)	Micro-thesaurus	`controlled`	Identifies a term as belonging to a particular topical subset (microthesaurus).
`termLanguage`	0..1	Language	`controlled`	The primary language of the term. This should be from a standard controlled vocabulary (ISO 639 two or three letter with or without extensions).
`termQualifier`	0..1	Qualifier	`controlledOrFreeText`	An additional string which, if supplied, qualifies the `termName`. Usually the combination of `termName` and `termQualifier` is unique within a thesaurus and the `termQualifier` is displayed in brackets. Allows for controlled or uncontrolled extensions.
`termStatus`	0..1	Status	`controlled`	The status of the term, which may be `active`, `deactivated` or `deleted`. In general, only `active` terms should be used to guide searching. A `deactivated` term (which may have history notes explaining why it was withdrawn) can be reinstated. Adding a term that is identical to a deactivated term is not recommended. `deleted` terms can be ignored for all purposes except reconstructing history.

Table 3 *(continued)*

Label	Occ	Name	Value space	Description
termApproval	0..1	Approval	controlled	The approval status of the term, which may be candidate, approved or rejected.
termType	0..1	Type	controlled	An indication of the basic type of the term, chosen from a controlled vocabulary that includes PT, ND, NL. PT = preferred term; ND = non-descriptor (non-preferred term); NL = node label.
definition	0..1	Definition	stringOrLangstring	A definition of the concept represented by the termName. It is expected that only one definition will be provided with any given language code.
scopeNote	0..1	Scope	stringOrLangstring	The scope of the use of the term in this CEF instance
historyNote	0..* (10)	History	stringOrLangstring	Information about changes made to the term over time.
editorsNote	0..*	Editor note	stringOrLangstring	Information about changes made to the term by an editor.
termVocabulary	0..1	Vocabulary	string	The identifier of the vocabulary the term originates from.
sortKey	0..1	Sort key	string	An explicit sort key for the term based on application-specific sorting rules to produce order not attainable through a strict alphanumeric sort. The sortKey associated with a term rather than a relation sub-record applies to its sort order throughout the CEF instance.
browseRoot	0..1	Top term	controlled	Indicates if a term should be displayed as a top term or not, with value true or false. For example a related term from another vocabulary may not necessarily be wanted as a top term.

Table 3 *(continued)*

Label	Occ	Name	Value space	Description
`termNote`	0..* (10)		`extension`	A note about the term clarifying the meaning or scope of the term. Multiple notes may be included. Each note may also carry an indication of a constraint on the vocabulary of its content, e.g. indicating that the content of a specific note have to be drawn from an identified vocabulary.
`termUpdate`	0..1	Update	`controlled`	The update action required for the record, which may be `add` or `delete`.
`termCreatedDate`	0..1	Created date	`date`	The date on which the record defining the term was created.
`termCreatedBy`	0..1	Creator	`string`	The name of the person who created the record defining the term.
`termModifiedDate`	0..1	Modified date	`date`	The date on which the record defining the term was last modified.
`termModifiedBy`	0..1	Modifier	`string`	The name of the person who last modified the record defining the term.

2.5 CEF termExtensions

The following are reserved labels for a CEF `termNote`.

Table 4 — Reserved labels for a CEF `termNote`

Label	Occ	Name	Value space	Description
`CEFType`	0..1	CEF Type	`extension`	A label taken from a controlled vocabulary used to indicate the type of term from a curriculum perspective. The default CEF vocabulary could include `objective, topic, action, competency`
`displayNote`	0..1	Display note	`extension`	A note associated with a term that may be used for display purposes.
`fullText`	0..1	Long term	`extension`	A term label that is longer than can be easily managed in user interfaces, but needs to be retained for completeness – e.g. parts of a curriculum document.
`level`	0..* (10)	Level	`extension`	An indication of the level that the concept applies to taken from an identified controlled vocabulary. For example Year 1 or Year 2.
`subject`	0..* (10)	Subject	`extension`	The main subject(s) that a concept belongs to. Similar to qualifier but from a set of subjects typically used in curricula taken from an identified controlled vocabulary.
`authority`	0..1	Authority	`extension`	An approved authority that created and 'owns' the term. Can be used by systems to allocate user permissions.
`altLabel`	0..*	Alternative label	`extension`	This is to provide alternative labels for the concept named by the term, that are expressed as a string or langstring. This is used to support display or retrieval where a separate term is not required such as abbreviations, acronyms or short names. For example maths for mathematics.

Table 4 *(continued)*

Label	Occ	Name	Value space	Description
`hiddenLabel`	0..*	Hidden label	`extension`	This is to provide alternative labels for the concept named by the term, that are expressed as a string or langstring. This is used to support retrieval and indexing where a separate term is not appropriate. It is not intended for display to users. Typically used for misspellings, for example mathematics.

2.6 Relation Sub-Record

There are only three basic kinds of relationships:

1. Hierarchical - terms are represented at different levels in a tree structure. The expectation is that the terms represent broader and narrower concepts.

   Codes:

   a. BT = broader term

   b. NT = narrower term

2. Equivalent – the terms represent the same or very similar concepts, at least they can be interchanged within the scope of the particular CEF.

   Codes:

   a. USE = use the second term in place of the first term

   b. UF = use the first term in place of the second term

   c. LE = linguistic equivalent

3. Associative – everything else, code RT for related term.

Limiting the relationships to these standard basic thesaural ones increases interoperability. Any refinements of relationships can be provided in an extension to the relationship in a `relationTypeQualifier`.

A relationship sub-record needs to be able to model sets of terms, such as competences, made up of an action and one or more topics. One way of doing this is to allow for multiple `termId`s as below. The relationship could be clarified by using a `relationTypeNote`.

Each relation sub-record contains the following:

Table 5 — Sub-records

Label	Occ	Name	Value space	Description
relationType	1	Relation	controlled	An indication of the type of the relation, chosen from the controlled vocabulary BT, NT, USE, UF, LE, RT
relationTypeNote	0..1	Relation note	controlled	A qualifier to the relation for example NTP for narrower term partitive.
termId	1..* (10)	Identifier	string	An opaque string of characters which uniquely identifies the term within a CEF instance. This could be a URI or a local identifier. If there is more than one termId they describe a compound relationship. In such a case only the termIds should be provided while any element which references a single term should be omitted. That is sortKey, termVocabulary, termName, termQualifier and termLanguage should be omitted from compound relationships.
termName	0..1	Name	stringOrLangstring	The name of the related term. Not needed for a transfer format. But can make files more readable.
termVocabulary	0..1	Vocabulary	string	The source vocabulary of the term.

Table 5 *(continued)*

Label	Occ	Name	Value space	Description
`sortKey`	0..1	Sort key	`string`	An explicit sort key for the term based on application-specific sorting rules to produce order not attainable through a strict alphanumeric sort. In a polyhierarchical vocabulary it is not enough to just have a sort key on a term as its order can vary in different locations.
`weight`	0..1	Weight	`Real number between -1 and +1`	The strength of the relationship between the two terms. -1 indicates complete opposites +1 indicates synonyms 0 indicates no relationship

2.7 CEF relationTypeNotes

The following are reserved labels for a CEF `relationTypeNote`.

Table 6 — Reserved labels for a CEF `relationTypeNote`

Label	Occ	Name	Value space	Description
`indexCode`	0..1		`extension`	A set of characters that are used as a prefix or suffix. This can enable a style sheet to be applied to add the code from a curriculum document in the correct place in a report.

Possible values for `relationTypeNote` should include the thesaural hierarchical extensions such as:

— instance (BTI, NTI);

— partitive (BTP, NTP);

— generic (BTG, NTG).

3 Translations

A language extension can be added to some elements or extensions and expressed as a `langstring`. In an XML schema the XML lang attribute will be used with values taken from standard two- or three-letter codes with optional extensions.

Some elements are defined as `stringOrLangstring` to allow values to be provided with or without a language attribute. This can be provided as a string or a `langString`. This allows the language to be omitted, or provided once as the language of the CEF instance, in the case of monolingual instances. It is recommended that a language should be provided.

4 Extensions

The value space entry of `controlledOrFreeText` indicates content which is free text **or** from a controlled vocabulary. If there is a `vocabId` then `termId` is mandatory and `vocabName` is optional. If no attributes are present then the content is uncontrolled and the element content is stringOrLangstring. The label of the element is the label in the above data model.

The value space entry of `controlled` indicates content which is from a controlled vocabulary. If there is a `vocabId` then `termId` is mandatory and `vocabName` is optional. The controlled vocabulary can be specified in the CEF instance or in the schema definition. The label of the element is the label in the above data model.

Table 7 — Elements to describe `controlledOrFreeText` and `controlled`

Label	Occ	Name	Value space	Description
`value`	1	Value	`stringOrLangstring`	The value of the note.
`vocabId`	0..1		`string`	The identifier of a set of terms (source vocabulary) that the value is take from. Shall occur if `termId` is present.
`termId`	0..1	Value Identifier	`string`	The identifier of the concept named by the value. Shall occur if `vocabId` is present.
`vocabName`	0..1	Vocabulary	`string`	The name of the vocabulary the extension terms come from.

Additonal information, such as a “vocabAuthority”, may be added in application profiles if required.

A value space entry of `extension` (`thesNote`, `termNote` or `relationTypeNote`) has a structure similar to `controlledOrFreeTextType` but additionally `label` is mandatory. The default name of the element is provided by `label`. This allows other sets of values to be represented that are not covered by the base model.

If the `value` comes from a controlled vocabulary then the source should be provided.

The `extension` information consists of a mandatory `label` and `value` plus optional, `vocabName`, `vocabId` and `termId`.

The `vocabId` and `termId` shall occur together. The `value` provided will be the preferred name.

Table 8 — Elements to describe `extension`

Label	Occ	Name	Value space	Description
`label`	1	Label	`string`	An identifier for the type of extension. The label may be defined in the above data model.
`value`	1	Value	`stringOrLangstring`	The value of the note.
`vocabId`	0..1	Vocabulary Identifer	`string`	The identifier of a set of terms (source vocabulary) that the value is take from. Shall occur if `termId` is present.
`termId`	0..1	Value Identifier	`string`	The identifier of the concept named by the value. Shall occur if vocab`Id` is present.
`vocabName`	0..1	Vocabulary	`string`	The name of the vocabulary the extension terms come from.

It is expected that profiles of the CEF data model will specify which elements or extensions are provided and if they are controlled or not and will identify the vocabularies that should be used for controlled values.

Annex A
(informative)

Informative binding

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- Need to add in the various namespaces properly... -->
<!-- This schema represents the data model in EN 15943 2010 (E) ... -->
<!-- Further information can be found in Curriculum Exchange Format (CWA 16078, CEN/WS LTS N 576, January 2010)  ... -->
<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:dc="http://purl.org/dc/elements/1.1/" elementFormDefault="qualified" targetNamespace="http://zthes.z3950.org/" xmlns="http://zthes.z3950.org/">
<xsd:annotation>
        <xsd:appinfo>
            <DC.Date.Created Scheme="DCTERMS.W3CDTF">2010-03-31</DC.Date.Created>
            <DC.Description>A schema which describes a structure for Curriculum information interchange</DC.Description>
            <DC.Format Scheme="http://www.iana.org/assignments/media-types/">text/xml</DC.Format>
            <DC.Identifier Scheme="DCTERMS.URI">tbc</DC.Identifier>
            <DC.Language Scheme="DCTERMS.ISO639-1">en</DC.Language>
            <DC.Publisher Href="tbc">tbc</DC.Publisher>
            <DC.Relation.ConformsTo>http://www.w3.org/2001/XMLSchema</DC.Relation.ConformsTo>
            <DC.Relation.IsBasedOn>http://zthes.z3950.org/schema/zthes-1.0.xsd</DC.Relation.IsBasedOn>
            <DC.Title>CEF (Curriculum Exchange Format)</DC.Title>
            <DCTERMS.License Href="http://creativecommons.org/licenses/by/2.0/uk/"/>
            <DC.Contributor Href="www.k-int.com">Knowledge Integration Ltd</DC.Contributor>
            <DC.Contributor Href="www.schemeta.com">Schemeta Ltd</DC.Contributor>
            <eGMS.Status>Draft Version 0.9</eGMS.Status>
        </xsd:appinfo>
        <xsd:documentation>This schema is a first draft to represent the CEF data model in a 'Zthes like' schema</xsd:documentation>
        <xsd:documentation>This schema is not a normative reference it is simply an example. It is envisaged that other bindings will be created</xsd:documentation>
        <xsd:documentation>This schema acknowledges that it is based on the Zthes schema but is not wholly compatible with the current published version</xsd:documentation>
        <xsd:documentation>The zthes namespace has been used as the target namespace</xsd:documentation>
    </xsd:annotation>
    <xsd:import namespace="http://purl.org/dc/elements/1.1/" schemaLocation="http://dublincore.org/schemas/xmls/qdc/dc.xsd"/>

    <!-- elements -->
    <xsd:element name="Zthes">
        <xsd:complexType>
            <xsd:sequence>
                <xsd:element ref="thes" minOccurs="0"/>
```

```
            <xsd:element ref="term" maxOccurs="unbounded"/>
        </xsd:sequence>
    </xsd:complexType>
</xsd:element>
<xsd:element name="thes">
    <xsd:complexType>
        <xsd:sequence>
            <xsd:element ref="dc:title" maxOccurs="unbounded"/>
            <xsd:element ref="dc:creator" minOccurs="0" maxOccurs="unbounded"/>
            <xsd:element ref="dc:subject" minOccurs="0" maxOccurs="unbounded"/>
            <xsd:element ref="dc:description" minOccurs="0" maxOccurs="unbounded"/>
            <xsd:element ref="dc:publisher" minOccurs="0" maxOccurs="unbounded"/>
            <xsd:element ref="dc:contributor" minOccurs="0" maxOccurs="unbounded"/>
            <xsd:element ref="dc:date" minOccurs="0"/>
            <xsd:element ref="dc:type" minOccurs="0" maxOccurs="unbounded"/>
            <xsd:element ref="dc:format" minOccurs="0" maxOccurs="unbounded"/>
            <xsd:element ref="dc:identifier"/>
            <xsd:element ref="dc:source" minOccurs="0"/>
            <xsd:element ref="dc:language" minOccurs="0" maxOccurs="unbounded"/>
            <xsd:element ref="dc:relation" minOccurs="0" maxOccurs="unbounded"/>
            <xsd:element ref="dc:coverage" minOccurs="0" maxOccurs="unbounded"/>
            <xsd:element ref="dc:rights" minOccurs="0" maxOccurs="unbounded"/>
            <xsd:element ref="resolver" minOccurs="0" maxOccurs="unbounded"/>
            <xsd:element ref="thesNote" minOccurs="0" maxOccurs="unbounded"/>
        </xsd:sequence>
    </xsd:complexType>
</xsd:element>
<xsd:element name="term">
    <xsd:complexType>
        <xsd:sequence>
            <xsd:element ref="termId"/>
            <xsd:element ref="termName"/>
            <xsd:element ref="relation" minOccurs="0" maxOccurs="unbounded"/>
            <xsd:element ref="termCategory" minOccurs="0" maxOccurs="unbounded"/>
            <xsd:element ref="termLanguage"/>
            <xsd:element ref="termQualifier" minOccurs="0"/>
            <xsd:element ref="termStatus" minOccurs="0"/>
            <xsd:element ref="termApproval" minOccurs="0"/>
            <xsd:element ref="termType" minOccurs="0"/>
            <xsd:element ref="definition" minOccurs="0"/>
            <xsd:element ref="scopeNote" minOccurs="0"/>
            <xsd:element ref="historyNote" minOccurs="0" maxOccurs="unbounded"/>
            <xsd:element ref="editorsNote" minOccurs="0" maxOccurs="unbounded"/>
            <xsd:element ref="termVocabulary" minOccurs="0"/>
            <xsd:element ref="sortKey" minOccurs="0"/>
            <xsd:element ref="termNote" minOccurs="0" maxOccurs="unbounded"/>
            <xsd:element ref="termUpdate" minOccurs="0"/>
            <xsd:element ref="termCreatedDate" minOccurs="0"/>
            <xsd:element ref="termCreatedBy" minOccurs="0"/>
            <xsd:element ref="termModifiedDate" minOccurs="0"/>
```

```
                <xsd:element ref="termModifiedBy" minOccurs="0"/>
            </xsd:sequence>
            <xsd:attribute name="browseRoot"/>
        </xsd:complexType>
    </xsd:element>
    <xsd:element name="relation">
        <xsd:complexType>
            <xsd:sequence>
                <xsd:element ref="relationType"/>
                <xsd:element ref="relationTypeNote" minOccurs="0"/>
                <xsd:element ref="termId" maxOccurs="unbounded"/>
                <xsd:element ref="termName" minOccurs="0"/>
                <xsd:element ref="termVocabulary" minOccurs="0"/>
                <xsd:element ref="sortKey" minOccurs="0"/>
                <xsd:element ref="weight" minOccurs="0"/>
            </xsd:sequence>
        </xsd:complexType>
    </xsd:element>
    <xsd:element name="thesNote" type="controlledOrStringOrLangstringExtension"/>
    <xsd:element name="termId" type="xsd:string"/>
    <xsd:element name="termName" type="stringOrLangString"/>
    <xsd:element name="resolver" type="xsd:string"/>
    <xsd:element name="termCategory" type="controlled"/>
    <xsd:element name="termLanguage" type="controlled"/>
    <xsd:element name="termQualifier" type="controlledOrStringOrLangString"/>
    <xsd:element name="termStatus" type="controlled"/>
    <xsd:element name="termApproval" type="controlled"/>
    <xsd:element name="termType" type="controlled"/>
    <xsd:element name="definition" type="stringOrLangString"/>
    <xsd:element name="scopeNote" type="stringOrLangString"/>
    <xsd:element name="historyNote" type="stringOrLangString"/>
    <xsd:element name="editorsNote" type="stringOrLangString"/>
    <xsd:element name="termNote" type="controlledOrStringOrLangstringExtension"/>
    <xsd:element name="termVocabulary" type="vocabReference"/>
    <xsd:element name="sortKey" type="xsd:string"/>
    <xsd:element name="termUpdate" type="controlled"/>
    <xsd:element name="termCreatedDate" type="xsd:date"/>
    <xsd:element name="termCreatedBy" type="xsd:string"/>
    <xsd:element name="termModifiedDate" type="xsd:date"/>
    <xsd:element name="termModifiedBy" type="xsd:string"/>
    <xsd:element name="relationType" type="controlled"/>
    <xsd:element name="relationTypeNote" type="controlledOrStringOrLangstringExtension"/>
    <xsd:element name="weight" type="xsd:string"/>
    <xsd:element name="langstring" type="langStringType"/>

    <!-- types -->
    <!-- the following should be considered as reserved labels as described in EN 15943 2010 (E)-->
    <!-- authority -->
    <!-- version -->
    <!-- purpose -->
```

```
<!-- category -->
<!-- altId -->
<!-- CEFType -->
<!-- displayNote -->
<!-- fullText -->
<!-- level -->
<!-- subject -->
<!-- altLabel -->
<!-- hiddenLabel -->
<!-- indexCode -->
<xsd:complexType name="langStringType">
    <xsd:simpleContent>
        <xsd:extension base="xsd:string">
            <xsd:attribute name="language" type="xsd:string" use="required"/>
        </xsd:extension>
    </xsd:simpleContent>
</xsd:complexType>
<xsd:complexType name="stringOrLangstringExtension" mixed="true">
    <xsd:choice minOccurs="0" maxOccurs="unbounded">
        <xsd:element ref="langstring"/>
    </xsd:choice>
    <xsd:attribute name="label"/>
</xsd:complexType>
<xsd:complexType name="stringExtension" mixed="true">
    <xsd:attribute name="label"/>
</xsd:complexType>
<xsd:complexType name="LangStringExtension">
    <xsd:choice maxOccurs="unbounded">
        <xsd:element ref="langstring"/>
    </xsd:choice>
    <xsd:attribute name="label"/>
</xsd:complexType>
<xsd:complexType name="controlledOrStringOrLangstringExtension" mixed="true">
    <xsd:choice minOccurs="0" maxOccurs="unbounded">
        <xsd:element ref="langstring"/>
    </xsd:choice>
    <xsd:attribute name="label"/>
    <xsd:attribute name="vocabId" use="optional"/>
    <xsd:attribute name="termId" use="optional"/>
    <xsd:attribute name="vocabName" use="optional"/>
    <xsd:attribute name="vocabAuthority" use="optional"/>
</xsd:complexType>
<xsd:complexType name="controlledOrStringOrLangString" mixed="true">
    <xsd:choice minOccurs="0" maxOccurs="unbounded">
        <xsd:element ref="langstring"/>
    </xsd:choice>
    <xsd:attribute name="vocabId" use="optional"/>
    <xsd:attribute name="termId" use="optional"/>
    <xsd:attribute name="vocabName" use="optional"/>
    <xsd:attribute name="vocabAuthority" use="optional"/>
```

```
    </xsd:complexType>
    <xsd:complexType name="controlled">
        <xsd:attribute name="vocabId"/>
        <xsd:attribute name="termId"/>
        <xsd:attribute name="vocabName" use="optional"/>
        <xsd:attribute name="vocabAuthority" use="optional"/>
    </xsd:complexType>
    <xsd:complexType name="controlledStringExtension" mixed="true">
        <xsd:attribute name="label"/>
        <xsd:attribute name="vocabId"/>
        <xsd:attribute name="termId"/>
        <xsd:attribute name="vocabName" use="optional"/>
        <xsd:attribute name="vocabAuthority" use="optional"/>
    </xsd:complexType>
    <xsd:complexType name="controlledLangStringExtension">
        <xsd:choice maxOccurs="unbounded">
            <xsd:element ref="langstring"/>
        </xsd:choice>
        <xsd:attribute name="label"/>
        <xsd:attribute name="vocabId"/>
        <xsd:attribute name="termId"/>
        <xsd:attribute name="vocabName" use="optional"/>
        <xsd:attribute name="vocabAuthority" use="optional"/>
    </xsd:complexType>
    <xsd:complexType name="vocabReference">
        <xsd:attribute name="vocabAuthority"/>
    </xsd:complexType>
    <xsd:complexType name="stringOrLangString" mixed="true">
        <xsd:choice minOccurs="0" maxOccurs="unbounded">
            <xsd:element ref="langstring"/>
        </xsd:choice>
    </xsd:complexType>
</xsd:schema>
```

Bibliography

[1] CWA 16078, *Curriculum Exchange Format*

[2] ISO 639 (all parts), *Codes for the representation of names of languages*

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