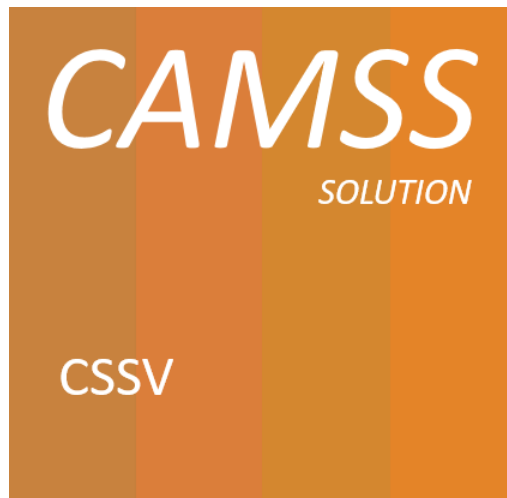


**Core Standards and Specifications Vocabulary  
(CSSV)  
v.1.2.0**



**Specification**

## Change Control

Modification	Details
<b>Version 1.0.0</b>	
<b>Initial version</b>	

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# 1. INTRODUCTION

The CSSV is the vocabulary used for the information exchange related to standards and specifications amongst software solutions, as well, it is the key element for the development and maintenance of the EIRA Library of Interoperability Specifications (ELIS<sup>1</sup>).

## 1.1. Context

The DEP Programme<sup>2</sup> of the European Commission supports the development of solutions that enable the cross-border delivery of interoperable public services in Europe. In order to ensure the interoperability of those services, the EIA action works as an integrator between the Member States and other departments of the European Commission for the development of a joint interoperability architecture for public services. The main output of this action is the European Interoperability Reference Architecture (EIRA<sup>3</sup>).

As an element of EIRA©, the EIRA Library of Interoperability Specifications (ELIS) was created. The ELIS contains the specifications describing the interoperability requirements of the architecture building blocks (ABBs) that conform to EIRA©.

At the core of the ELIS, there is also another asset developed in the context of the CAMSS<sup>4</sup> action that shall be referenced which has been further developed: the **Core Standards and Specifications Vocabulary (CSSV)**.

## 1.2. Scope

The objective of this document is to provide an interoperability-oriented solution for the information exchange related to standards and specifications amongst software solutions, the Core Standards and Specifications Vocabulary.

The CSSV specified in this document has been evolved considering inputs from previous releases and launched public consultations over the vocabulary, but also the GAP analysis performed between the CAMSS Assessment Scenarios and the CAMSS Core Vocabularies (i.e., the CAV and the CSSV). From this

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<sup>1</sup> ELIS: <https://joinup.ec.europa.eu/collection/common-assessment-method-standards-and-specifications-camss/solution/elis>

<sup>2</sup> DEP Programme: <https://digital-strategy.ec.europa.eu/en/activities/digital-programme>

<sup>3</sup> EIRA: <https://joinup.ec.europa.eu/collection/european-interoperability-reference-architecture-eira/about>

<sup>4</sup> CAMSS: <https://joinup.ec.europa.eu/collection/common-assessment-method-standards-and-specifications-camss/about>

analysis some changes to be implemented in the CSSV were detected. See the corresponding table of improvements detected in *Annex II – GAP Analysis – Improvements detected*.

### **1.3. Proposed solution**

The CSSV defined in this document is a minor release of the vocabulary which was created in the past for the development of the ELIS.

### **1.4. Structure of this document**

This document consists of the following sections:

- Section 2 describes the related solutions to the Core Standards and Specifications Vocabulary (CSSV).
- Section 3 explains the CSSV model and identifies the classes and properties defined for the vocabulary.
- Section 4 contains the Conformance Statement for this vocabulary.
- Section 5 describes specific accessibility and multilingualism aspects.
- Section 6 lists the different acronyms used in the whole document.
- Section 7 contains related references.

## **2. RELATED SOLUTIONS**

This section lists the different related solutions to the CSSV.

### **2.1. CAMSS Ontology<sup>5</sup>**

CAMSS stands for Common Assessment Method for Standards and Specifications, and it is an action of the DEP Programme.

The CAMSS Ontology defines the CAMSS terminology and axioms that define the CAMSS concepts and logic rules. The interpretation of the CAMSS concepts cast a clear idea of the method defined in CAMSS to assess standards and specifications.

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<sup>5</sup> CAMSS Ontology: <https://joinup.ec.europa.eu/collection/common-assessment-method-standards-and-specifications-camss/solution/camss-ontology>

## 2.2. Core Assessment Vocabulary (CAV)<sup>6</sup>

The Core Assessment Vocabulary represents, expresses, and defines what an “Assessment” of “Assets” is and how to perform the assessment based on “Criteria”. It is a domain-agnostic vocabulary, meaning that it can be used to assess any asset. Hence, the CAV is at the very core of the CAMSS Ontology. Or, in other words, the CAMSS Ontology reuses and extends the CAV.

## 2.3. EIRA Library of Interoperability Specifications (ELIS)

The ELIS is a family of interoperability specifications that define the interoperability aspects of the Architecture Building Blocks (ABBs) contained in EIRA©. It aims to support architects for the modelling of solutions based on EIRA©. The current version of ELIS will have to be slightly revamped to accommodate the concepts defined in the CSSV and support the requirement of all the stakeholders, e.g. EIRA-based solution developer needs, NATO profiles, others.

## 2.4. Data Catalogue Vocabulary (DCAT)<sup>7</sup>

The Data Catalogue Vocabulary (DCAT) is used to describe public sector datasets in Europe. This vocabulary has been developed by the W3C. DCAT can be used to describe any type of asset (treated as a dataset, especially if you consider that metadata is also data).

The figure below shows the DCAT conceptual data model with its classes and properties:

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<sup>6</sup> Core Assessment Vocabulary: <https://joinup.ec.europa.eu/collection/common-assessment-method-standards-and-specifications-camss/solution/core-assessment-vocabulary-cav>

<sup>7</sup> DCAT: <https://www.w3.org/TR/vocab-dcat-2/>

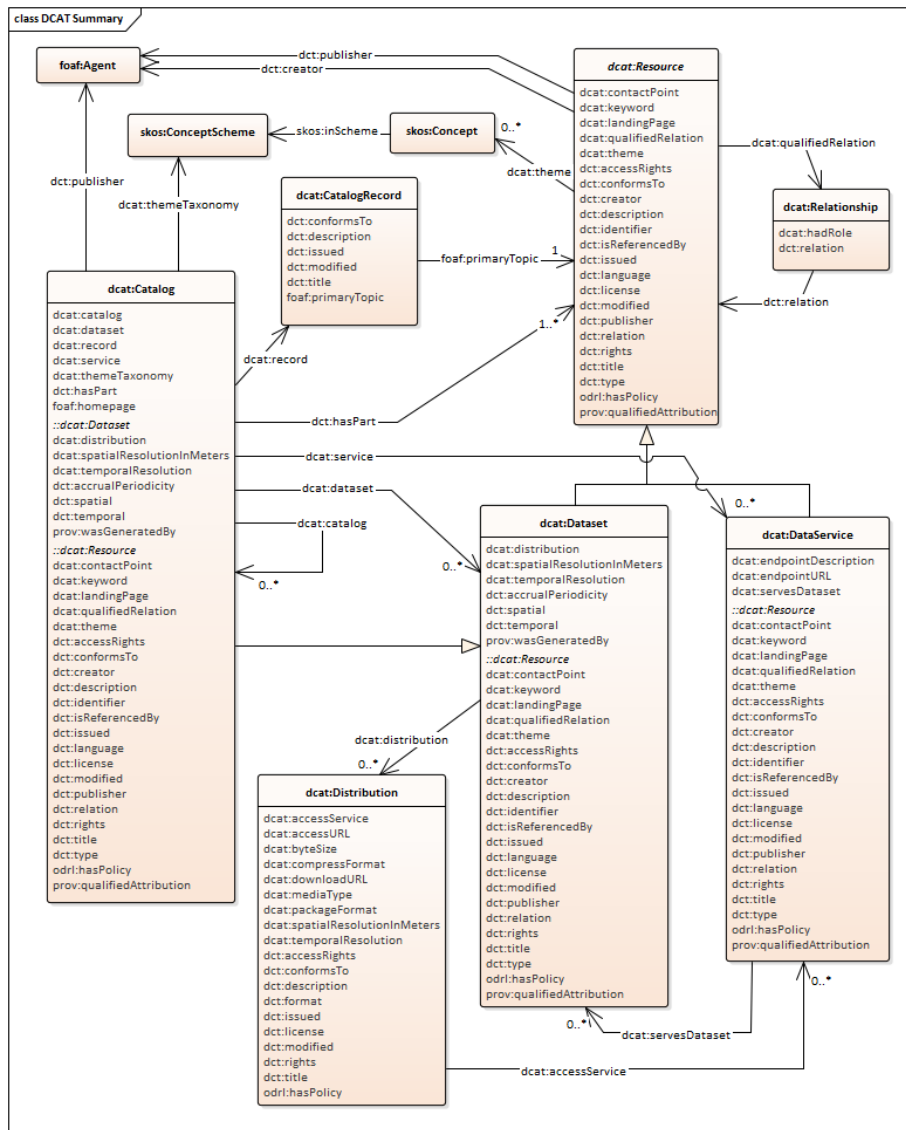


Figure 1: DCAT classes and properties

In the CSSV model, the class Specification can be considered the “root” class and it is a “Resource” as defined in DCAT.

### 3. CORE STANDARDS AND SPECIFICATIONS VOCABULARY

The Core Standards and Specifications Vocabulary is depicted in Figure 2 CSSV Data model. The figure shows the classes and properties that are used or defined in the CSSV.

#### 3.1. Data Model for the CSSV

The following data model results from:

- The analysis performed by the CAMSS Team,



- The review of the comments issued by the open community during previous public reviews of the vocabulary in the public GitHub,
- GAP analysis between the CAMSS Assessment Scenarios and the CAMSS Core Vocabularies (i.e., CAV, CSSV).

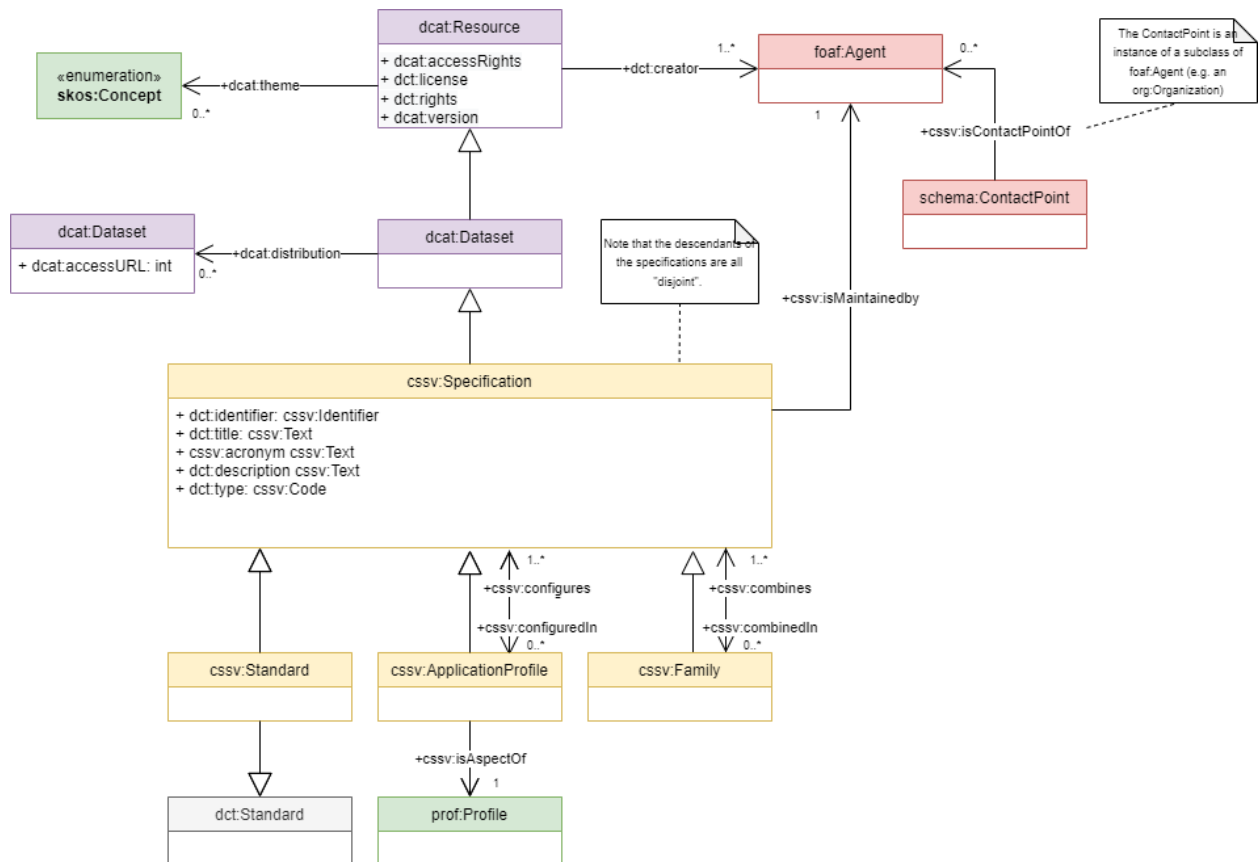


Figure 2: CSSV Data model

### 3.1.1. Interpretation

The main class of the CSSV model is the “Specification”. A Specification is an asset, as it inherits from the *dcat:Dataset*, which inherits from the *dcat:Resource*.

A Specification, additionally, can be a Standard, an ApplicationProfile, and or a Family or a collection of other specifications. The CSSV model defines:

- A **Specification** as a set of agreed, descriptive, and normative statements about how a specification should be designed or made.
- A **Standard** as a specification that is largely adopted and possibly endorsed.
- An **ApplicationProfile** as customisation of one or more existing specifications potentially for a given use case or a policy domain adding an end-to-end narrative describing and ensuring the interoperability of its underlying specification(s). By customisation, we understand the “addition of more specificity by identifying mandatory, recommended, and optional elements, as well as by defining controlled vocabularies to be employed”.

- A **Family** as a collection of interrelated and/or complementary specifications, standards or application profiles and the explanation of how they are combined, used, or both.

A collection of Specifications differs from a Family of Specifications in the fact that the relationship amongst themselves is not explicit. In the CSSV model, a collection of Specifications is an Asset that is related to other Assets and that is realised as an individual of a Specification. In other words, a Specification that reuses the *dct:relation* property of its base class *dcat:Dataset*.

There are occasions where collections of Specifications are applied to a context or a domain in a specific “configuration”. Thus application profiles may conform sets of “themed” specifications. For this, the CSSV model uses the property “configures/includedIn” and the *dcat:theme* property pointing at a *skos:Concept* (i.e. a code, see the DCAT model above).

It is important to note that the descendants of the specifications are all “disjoint”. Thus, ApplicationProfiles and Families are Specifications that refer to or put together with other Specifications and/or Standards, but cannot themselves be considered Standards.

One Specification, in time, may become a Standard. In these cases, the authority (author) that defined the Specification may be different from the one that creates and maintains artefacts out of the Standard. Think for example of the artefacts produced, maintained and distributed by the Publications Office of the European Union (OP) in its site EU Vocabularies<sup>8</sup>: all these artefacts are defined by other authorities (e.g. the ISO), whilst the artefacts (e.g. the controlled vocabularies expressed in SKOS, XML, GeneriCode, XML, etc.) are supplied by the OP. For this, the CSSV uses the properties *dct:creator* and *ccsv:isMaintainedBy*. Additionally, the *dcat:Dataset* has the property *dct:type* that can be used to state that the Specification is of type “definition, artefact or other”. The DCAT vocabulary also provides the possibility of expressing who is responsible for the publication of the definition or the artefacts via the property *dct:publisher* (see the DCAT model).

The maintainer or publisher of a Specification is a *foaf:Agent*, which allows great flexibility to the CSSV model as *foaf:Agent* is the base class in many ontologies. The CSSV puts forward the reuse of the Core Person Vocabulary (CPV) and the Organization Ontology (W3C Org) for this purpose. Also, the *foaf:Agent* also provides the contact point of the specification.

Concerning the Intellectual Property Rights, they are covered by the fact that a specification which is a *dcat:Resource* and it allows to define the *dct:license* and *dct:rights*.

Finally, note that all the descendants of the *ccsv:Specification* are disjoint. This entails that an individual of an application profile or family cannot be a standard, but does not preclude that, in time, the application profile or the family can become standards. If that were the case then individuals of *ccsv:Standard* would be created to represent the standardisation of those specifications that are application profiles and families.

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<sup>8</sup> EU Vocabularies: <https://publications.europa.eu/en/web/eu-vocabularies/controlled-vocabularies>

## 3.2. Class: Specification

OWL Class	cssv:Specification
<b>Label:</b>	Specification
<b>Definition:</b>	Set of agreed, descriptive, and normative statements about how a specification should be designed or made.
<b>Subclass of:</b>	dcat:Dataset

The sections below list the data properties (class attributes) inherited from DCAT that are of particular interest to the class Specification:

### 3.2.1. Property: dct:identifier

OWL Property	dct:identifier
<b>OWL type:</b>	owl:DataProperty
<b>Label:</b>	identifier
<b>Definition:</b>	This property contains the main identifier for the specification, e.g. the URI or another unique identifier.
<b>Property Type:</b>	xsd:AnyURI
<b>Examples:</b>	<p>Any URI pointing at an instance of an Asset. An example of this could be:</p> <ul style="list-style-type: none"><li>- DCAT (W3C)</li><li>- URI: <a href="http://www.w3.org/ns/dcat#">http://www.w3.org/ns/dcat#</a></li><li>- Expression in CSSV:</li></ul> <pre>@prefix cssv: &lt;<a href="http://data.europa.eu/xyz/cssv#">http://data.europa.eu/xyz/cssv#</a>&gt; . @prefix dct: &lt;<a href="http://purl.org/dc/terms/">http://purl.org/dc/terms/</a>&gt; .  &lt;<a href="http://www.w3.org/ns/dcat#">http://www.w3.org/ns/dcat#</a>&gt;   a &lt;cssv:Specification&gt; ;   dct:identifier "<a href="http://www.w3.org/ns/dcat#">http://www.w3.org/ns/dcat#</a>" .</pre>

### 3.2.2. Property: dct:title

OWL Property	dct:title
<b>OWL type:</b>	owl:DataProperty
<b>Label:</b>	title
<b>Definition:</b>	The name given to the Specification.
<b>Property Type:</b>	xsd:String
<b>Examples:</b>	Core Standards and Specifications Vocabulary, Core Assessment Vocabulary, Core Public Service Vocabulary, Core Criterion and Core Evidence Vocabulary, etc.

### 3.2.3. Property: cssv:acronym

OWL Property	cssv:acronym
<b>OWL type:</b>	owl:DataProperty
<b>Label:</b>	acronymSpecification
<b>Definition:</b>	Abbreviation of the specification.
<b>Property Type:</b>	xsd:String
<b>Examples:</b>	CSSV, CAV, CPSV, CCCEV, etc.

### 3.2.4. Property: dct:description

OWL Property	dct:description
<b>OWL type:</b>	owl:DataProperty
<b>Label:</b>	description
<b>Definition:</b>	This property contains a free-text account of the Specification. This property can be repeated for parallel language versions of the description.
<b>Property Type:</b>	xsd:String
<b>Examples:</b>	To define the main concepts and characteristics related to specifications, standards, and their combinations and relationships.

### 3.2.5. Property: dct:type

OWL Property	dct:type
<b>OWL type:</b>	owl:ObjectProperty
<b>Label:</b>	type
<b>Definition:</b>	This property refers to the type of the Specification. A controlled vocabulary for the values has not been defined for the time being. A proposal is provided in the examples below.
<b>Property Type:</b>	skos:Concept
<b>Domain:</b>	<i>dcat:Resource</i>
<b>Range:</b>	<i>skos:Concept</i>
<b>Examples:</b>	Definition, Artefact, Summary.

### 3.2.6. Property: dct:accessRights

OWL Property	dct:accessRights
<b>OWL type:</b>	owl:DataProperty
<b>Label:</b>	accessRights
<b>Definition:</b>	Information about who can access the resource or an indication of its security status.
<b>Property Type:</b>	xsd:AnyURI
<b>Examples:</b>	Read, write, modify, and delete rights.

### 3.2.7. Property: dct:license

OWL Property	dct:license
<b>OWL type:</b>	owl:DataProperty
<b>Label:</b>	license
<b>Definition:</b>	A legal document under which the resource is made available.
<b>Property Type:</b>	xsd:AnyURI

<b>Examples:</b>	Creative commons license.
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### 3.2.8. Property: dct:rights

OWL Property	dct:rights
<b>OWL type:</b>	owl:DataProperty
<b>Label:</b>	rights
<b>Definition:</b>	A statement that concerns all rights not addressed with dct:license or dct:accessRights, such as copyright statements.
<b>Property Type:</b>	xsd:AnyURI

### 3.2.9. Property: cssv:configuredIn

OWL Property	cssv:configuredIn
<b>OWL type:</b>	owl:ObjectProperty
<b>Label:</b>	configuredIn
<b>Definition:</b>	A set of Specifications potentially for a given use case or policy domain that are aggregated in an ApplicationProfile.
<b>Domain:</b>	<i>cssv:Specification</i>
<b>Range:</b>	<i>cssv:ApplicationProfile</i>
<b>Examples:</b>	Instance classes representing application profiles, such as DCAT-AP, ADMS-AP, others.

### 3.2.10. Property: cssv:combinedIn

OWL Property	cssv:combinedIn
<b>OWL type:</b>	owl:ObjectProperty
<b>Label:</b>	combinedIn
<b>Definition:</b>	A set of Specifications that are complementary and interrelated, forming a Family of Specifications.
<b>Domain:</b>	<i>cssv:Specification</i>

<b>Range:</b>	<i>cssv:Family</i>
<b>Examples:</b>	OASIS UBL XML-based family (XML, XML Schema Definition, ISO Schematron, OASIS Genericcode, Context Value Association (CVA), UN/CEFACT unqualified data types); OASIS JSON-based family; CEN TC 440 families; UN/CEFACT CII elnvoice family; other.

### 3.2.11. Property: *cssv:isMaintainedBy*

OWL Property	<i>cssv:isMaintainedBy</i>
<b>OWL type:</b>	owl:ObjectProperty
<b>Label:</b>	isMaintainedBy
<b>Definition:</b>	The Person, Organisation responsible to update and maintain the specification.
<b>Domain:</b>	<i>cssv:Specification</i>
<b>Range:</b>	<i>foaf:Agent</i>
<b>Examples:</b>	CAMSS Team, SEMIC, W3C, OASIS, others.

### 3.3. Class: *cssv:Standard*

OWL Class	<i>cssv:Standard</i>
<b>Label:</b>	Standard
<b>Definition:</b>	Specification that is largely adopted and possibly endorsed.
<b>Subclass of:</b>	<i>cssv:Specification</i>

At the present stage all the properties of the *cssv:Standard* class are the ones inherited from *cssv:Specification* and *dcat:Data set*.

### 3.4. Class: *cssv:ApplicationProfile*

OWL Class	<i>cssv:ApplicationProfile</i>
<b>Label:</b>	ApplicationProfile

<b>Definition:</b>	An application profile “customises one or more existing specifications potentially for a given use case or a policy domain adding an end to end narrative describing and ensuring the interoperability of its underlying specification(s)”.
<b>Subclass of:</b>	cssv:Specification

#### 3.4.1. Property: cssv:configures

OWL Property	cssv:configures
<b>OWL type:</b>	owl:ObjectProperty
<b>Label:</b>	configures
<b>Definition:</b>	Whether an Application Profile design or adapts a Specification for a specific purpose.
<b>Domain:</b>	cssv:ApplicationProfile
<b>Range:</b>	cssv:Specification
<b>Examples:</b>	DCAT-AP configuring DCAT for its use in the context of the EU Public Administrations; Any NATO profile configuring a set of interoperability Specifications for a specific context of use; other.

#### 3.4.2. Property: cssv:isAspectOf

OWL Property	cssv:isAspectOf
<b>OWL type:</b>	owl:ObjectProperty
<b>Label:</b>	isAspectOf
<b>Definition:</b>	ApplicationProfile is a part of a Profile.
<b>Domain:</b>	cssv:ApplicationProfile
<b>Range:</b>	prof:Profile
<b>Examples:</b>	DCAT-AP.



### 3.5. Class: *cssv:Family*

OWL Class	<i>cssv:Family</i>
<b>Label:</b>	Family
<b>Definition:</b>	A family is a collection of interrelated and/or complementary specifications, standards, or application profiles and the explanation of how they are combined, used, or both.
<b>Subclass of:</b>	<i>cssv:Specification</i>

#### 3.5.1. Property: *cssv:combines*

OWL Property	<i>cssv:combines</i>
<b>OWL type:</b>	owl:ObjectProperty
<b>Label:</b>	Combines
<b>Definition:</b>	Whether a Family is a union of more than one Specifications.
<b>Domain:</b>	<i>cssv:Family</i>
<b>Range:</b>	<i>cssv:Specification</i>
<b>Examples:</b>	One or more Specifications that are part of a family, e.g. OASIS UBL XML-based family (XML, XML Schema Definition, ISO Schematron, OASIS Genericode, Context Value Association (CVA), UN/CEFACT unqualified data types); OASIS JSON-based family; CEN TC 440 families; UN/CEFACT CII invoice family; other. Conformance Statement.

## 4. CONFORMANCE STATEMENT

A data interchange of Standards or Specifications, however that interchange occurs, is conformant with the CSSV if:

- it uses the terms (classes and properties) in a way consistent with their semantics as declared in this specification;
- it does not use terms from other vocabularies instead of ones defined in this vocabulary that could reasonably be used.

A conforming data interchange:

- may include terms from other vocabularies;

- may use only a subset of CSSV terms.

The CSSV is technology-neutral and a publisher may use any of the terms defined in this document encoded in any technology although RDF and XML are preferred.

## 5. ACCESSIBILITY AND MULTILINGUAL ASPECTS

The CSSV can operate in any language as:

- In a multilingual context, all those properties that are datatype “Text” the value may exist in multiple languages, the property may be instantiated multiple times and tagged with the language identifier for the value used for that property.
- The CSSV specification encourages the use of PURIs as identifiers.

## 6. ACRONYMS

Term	Description
<b>EIRA</b> ©	European Interoperability Reference Architecture
<b>ELIS</b>	EIRA Library of Interoperability Specifications
<b>ABBs</b>	Architecture Building Blocks
<b>CSSV</b>	Core Standards and Specifications Vocabulary
<b>SEMIC</b>	Semantic Interoperability Community
<b>CAV</b>	Core Assessment Vocabulary
<b>DCAT</b>	Data Catalogue Vocabulary
<b>CPSV</b>	Core Public Service Vocabulary

## 7. REFERENCES

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*ELIS* - *EIRA Library of Interoperability Specifications*. (n.d.). Retrieved from <https://joinup.ec.europa.eu/release/eira-library-interoperability-specifications-elis/v100-beta>

*W3C*. (2019, October 03). Retrieved from Data Catalog Vocabulary (DCAT): <https://www.w3.org/TR/vocab-dcat/>

## ANNEX I – GAP ANALYSIS – IMPROVEMENTS DETECTED

The following table lists the improvements detected and implemented during the GAP analysis and whether the improvement affects the CAMSS Assessment Scenarios, the CAV, or CSSV:

Improvement	CAMSS Assessment Scenarios	CAV	CSSV
In the CAMSS Tools, add a field to identify the version of the specification that is being assessed. In the CSSV, this attribute is inherited from DCAT	✓	N/A	✓
In the CAMSS Tools, the field “Address where the specification is accessible” to be renamed by “URL from where the specification is distributed “	✓	N/A	N/A
In the CAMSS Tools, to add the field “provide its URL” when another SDO has been selected	✓	N/A	N/A
In the CAMSS Tools, creation of a section related to “Information on the assessment of the specification” and move inside it all the fields related to the reason of submission that currently are in the section “Information on the specification”	✓	N/A	N/A
In the CAMSS Tools, change as question the field “The functional area of application for the formal specification is addressing interoperability and eGovernment”	✓	N/A	N/A
In the CAMSS Tools, put as “select button” the field “The functional area of application for the formal specification is addressing interoperability and eGovernment”	✓	N/A	N/A
The CSSV is missing the attribute <i>cssv:acronym</i> in the class <i>cssv:Specification</i> and the attribute <i>dct:alternative</i> has been removed.	N/A	N/A	✓
In the CAMSS Tools, added a field for the description of the specification that is being assessed	✓	N/A	N/A
In the CAMSS Tools, added a field to specify the type of specification (i.e., Specification, Standard, Application Profile, Family of Specifications)	✓	N/A	N/A

## ANNEX II – CSSV SPECIFICATION



CSSV.drawio



CSSV v1.2.0.ttl