**UN/CEFACT**

**United Nations Centre for Trade Facilitation and Electronic Business**

# Metadata for Core Components

# Core Components

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# 1  Table of Contents

## 2   Introduction

This document describes the metamodel of Core Components. In order to improve readability the metamodel is built up and explained in a number of steps, illustrated by a class diagram and a list of used classes and attributes, with definitions. Classes that have already been introduced in an earlier diagram are shown in grey and are not repeated in the list of classes following this diagram.

Chapter 3 contains a very basic metamodel.
Chapter 4 completes this metamodel to have a basic metamodel for Core Components.
Chapter 5 adds the notion of restricting the permitted values for a Core Component.
Chapter 6 gives a complete overview of the required metadata for a Core Component.
Chapter 7 introduces the concept of Context and the impact it has on the metamodel.
Chapter 8 gives an overview of data types that have been used in the other diagrams.

## 3   Simplified Core Components metamodel

### 3.1   Diagram
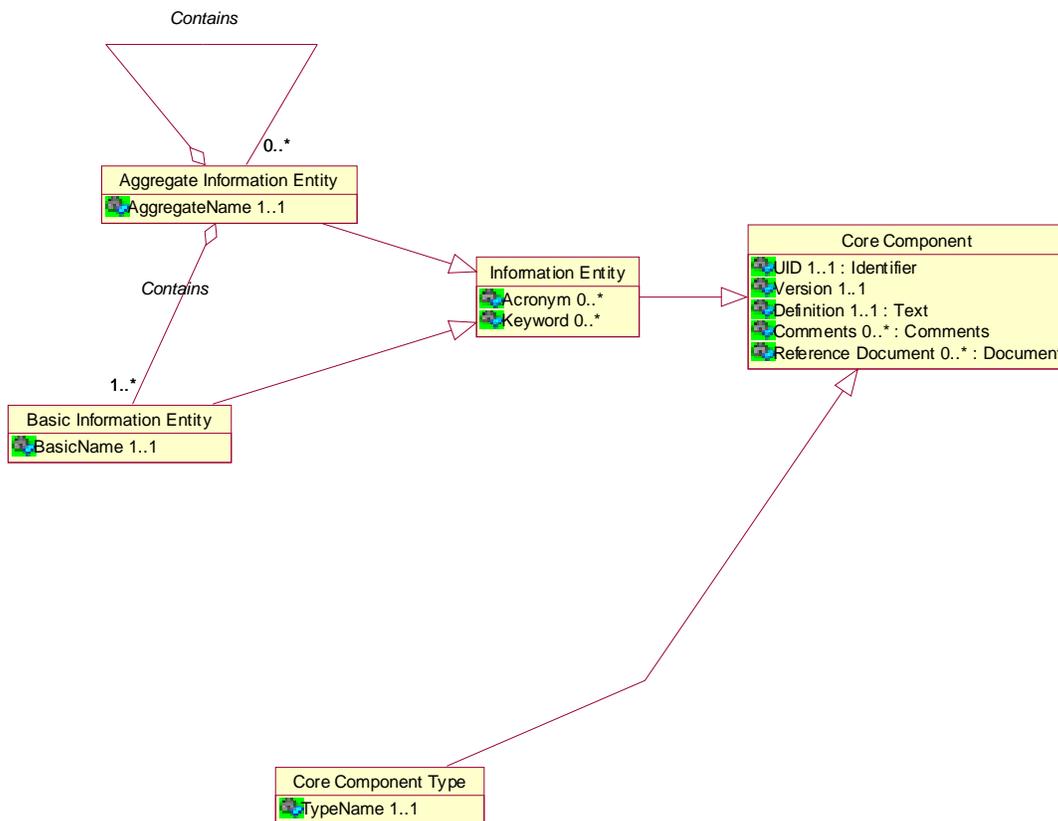
This simple metamodel describes the existence of the three types of Core Components (Aggregate Information Entity, Basic Information Entity and Core Component Type). It describes the fact that an Aggregate Information Entity is composed of at least one Basic Information Entity and optionally additional Basic Information Entities and other Aggregate Information Entities.
It defines the basic "meta-information" that is required for Core Components (UID, Name, Definition, Version, Acronym, ...).
The concept of "Information Entity" has been created to make the distinction between the Core Component Type and the other Core Components (this will become more necessary on the more elaborated metamodels).

## 3.2  Classes and Attributes

### 3.2.1  Aggregate Information Entity
**Definition:**
An Aggregate Information Entity is a composed Core Component (i.e. a Core Component that contains one or more other Core Components).

**Attributes:**
**AggregateName 1..1:** Name of an Aggregate Information Entity (according to Naming Conventions).
**Acronym 0..*:** Abbreviations or codes under which the core Component is known.
**Keyword 0..*:** One or more significant words used for retrieval of Core Components.
**UID 1..1:** Unique Identifier of a Core Component within the Core Component Library.
**Version 1..1:** Version number of a Core Component.
**Definition 1..1:** Clear and unambiguous definition of the Core Component.
**Comments 0..*:** Relevant information about the Core Component.
**Reference Document 0..*:** Reference material about a Core Component.

### 3.2.2  Basic Information Entity
**Definition:**
A Basic Information Entity is a singular Core Component.

**Attributes:**
**BasicName 1..1:** Name of a Basic Information Entity (according to Naming Conventions).
**Acronym 0..*:** Abbreviations or codes under which the core Component is known.
**Keyword 0..*:** One or more significant words used for retrieval of Core Components.
**UID 1..1:** Unique Identifier of a Core Component within the Core Component Library.
**Version 1..1:** Version number of a Core Component.
**Definition 1..1:** Clear and unambiguous definition of the Core Component.
**Comments 0..*:** Relevant information about the Core Component.
**Reference Document 0..*:** Reference material about a Core Component.

### 3.2.3  Core Component
**Definition:**

A Core Component is a reusable semantic building block.

**Attributes:**
**UID 1..1:** Unique Identifier of a Core Component within the Core Component Library.
**Version 1..1:** Version number of a Core Component.
**Definition 1..1:** Clear and unambiguous definition of the Core Component.
**Comments 0..*:** Relevant information about the Core Component.
**Reference Document 0..*:** Reference material about a Core Component.

### 3.2.4  Core Component Type
**Definition:**
A Core Component Type is a Core Component that has no business meaning on its own.

**Attributes:**
**TypeName 1..1:** Name of a Core Component Type (according to Naming Conventions).
**UID 1..1:** Unique Identifier of a Core Component within the Core Component Library.
**Version 1..1:** Version number of a Core Component.
**Definition 1..1:** Clear and unambiguous definition of the Core Component.
**Comments 0..*:** Relevant information about the Core Component.
**Reference Document 0..*:** Reference material about a Core Component.

### 3.2.5  Information Entity
**Definition:**
An Information Entity is a reusable semantic building block for the exchange of business-related information.

**Attributes:**
**Acronym 0..*:** Abbreviations or codes under which the core Component is known.
**Keyword 0..*:** One or more significant words used for retrieval of Core Components.
**UID 1..1:** Unique Identifier of a Core Component within the Core Component Library.
**Version 1..1:** Version number of a Core Component.
**Definition 1..1:** Clear and unambiguous definition of the Core Component.
**Comments 0..*:** Relevant information about the Core Component.
**Reference Document 0..*:** Reference material about a Core Component.

# 4   Basic Core Components metamodel

## 4.1  Diagram
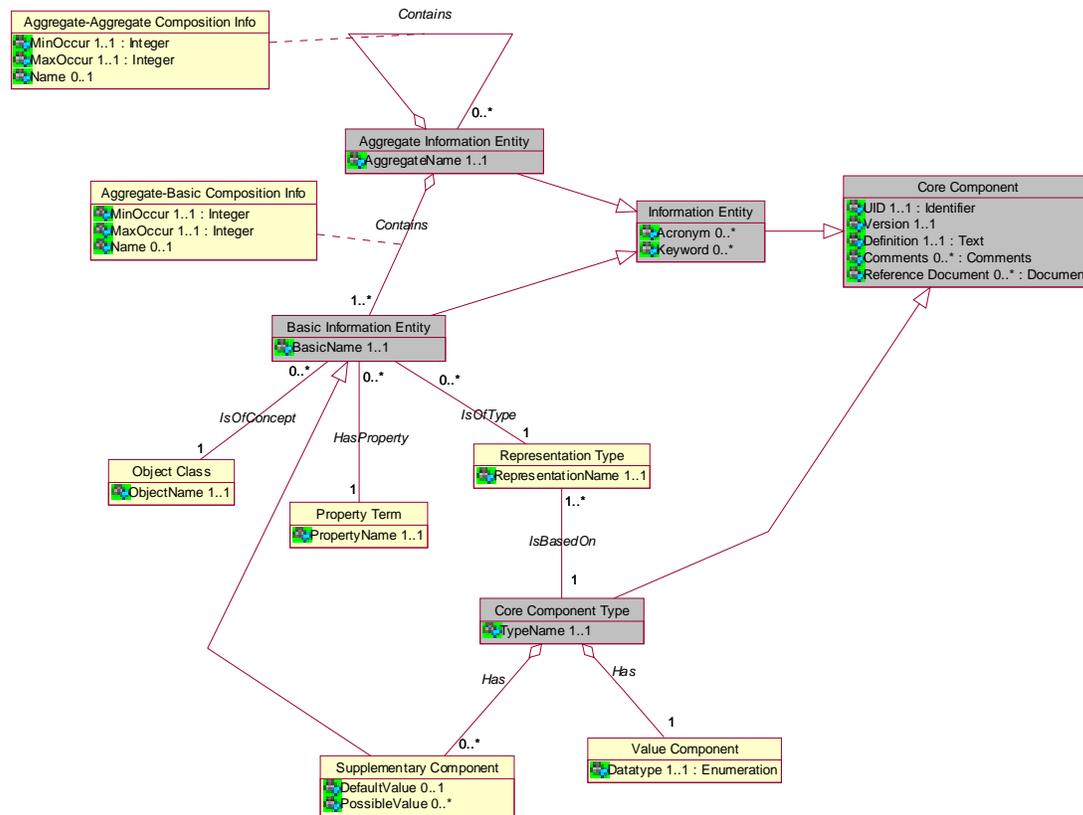
This basic metamodel adds following information:

A Basic Information Entity is composed of an Object Class, a Property Term and a Representation Type.

A Representation Type is based ion a Core Component Type and the Core Component Type is composed of a mandatory Value Component, which defines its primitive data type, and optional Supplementary Components, which give additional information. Supplementary Components are always Basic Information Entities themselves. Remark that the relation between Representation Type and Core Component Type is a bit different from the current situation in the sense that today a Representation Type is not always based on a Core Component Type. This situation makes it however impossible to specify the primitive data type in a consistent way.

Information has been added on the aggregation links for an Aggregate Information Entity. This makes it possible to define the fact whether the composition is optional, mandatory or repetitive and to change the name of a composing element.

## 4.2  Classes and Attributes

### 4.2.1  Aggregate-Aggregate Composition Info
**Definition:**

The Aggregate-Aggregate Composition Info specifies additional information when an Aggregate Information Entity is used in another Aggregate Information Entity.

**Attributes:**
**MinOccur 1..1:** Minimum number of occurrences of an Aggregate Information Entity in another Aggregate Information Entity.
**MaxOccur 1..1:** Maximum number of occurrences of an Aggregate Information Entity in another Aggregate Information Entity.
**Name 0..1:** Optional other name to be used for an Aggregate Information Entity when used in another Aggregate Information Entity.

### 4.2.2  Aggregate-Basic Composition Info
**Definition:**
The Aggregate-Basic Composition Info specifies additional information when the Basic Information Entity is used in an Aggregate Information Entity.

**Attributes:**
**MinOccur 1..1:** Minimum number of occurrences of a Basic Information Entity in an Aggregate Information Entity.
**MaxOccur 1..1:** Maximum number of occurrences of a Basic Information Entity in an Aggregate Information Entity.
**Name 0..1:** Optional other name to be used for a Basic Information Entity when used in an Aggregate Information Entity.

### 4.2.3  Object Class
**Definition:**
An Object Class represents the business concept to which a Basic Information Entity belongs (e.g. Order, Account, ...).

**Attributes:**
**ObjectName 1..1:** Name of an Object Class (according to Naming Conventions).

### 4.2.4  Property Term
**Definition:**
A Property Term represents a single characteristic of a  Basic Information Entity within a business concept (e.g. Colour, Name, ...).

**Attributes:**
**PropertyName 1..1:** Name of a Property Term  (according to Naming Conventions).

### 4.2.5  Representation Type
**Definition:**
A Representation Type defines the set of valid values for a Basic Information Entity.

**Attributes:**
**RepresentationName 1..1:** Name of a Representation Type  (according to Naming Conventions).

### 4.2.6  Supplementary Component
**Definition:**
A Supplementary Component qualifies the value of a Basic Information Entity.

**Attributes:**
**DefaultValue 0..1:** Optional default value for a supplementary component of a Core Component Type.
**PossibleValue 0..*:** Possible value for a supplementary component of a Core Component Type.
**BasicName 1..1:** Name of a Basic Information Entity (according to Naming Conventions).
**Acronym 0..*:** Abbreviations or codes under which the core Component is known.
**Keyword 0..*:** One or more significant words used for retrieval of Core Components.
**UID 1..1:** Unique Identifier of a Core Component within the Core Component Library.
**Version 1..1:** Version number of a Core Component.
**Definition 1..1:** Clear and unambiguous definition of the Core Component.
**Comments 0..*:** Relevant information about the Core Component.
**Reference Document 0..*:** Reference material about a Core Component.

### 4.2.7  Value Component
**Definition:**
A Value Component defines the primitive type that must be used  to  express the value of a Basic Information Entity.

**Attributes:**
**Datatype 1..1:** Primitive type to be used for the representation of the value of a Core Component Type. Possible values are String, Decimal, Integer, Boolean, Date.

# 5  Introducing value restrictions

## *5.1  Diagram*
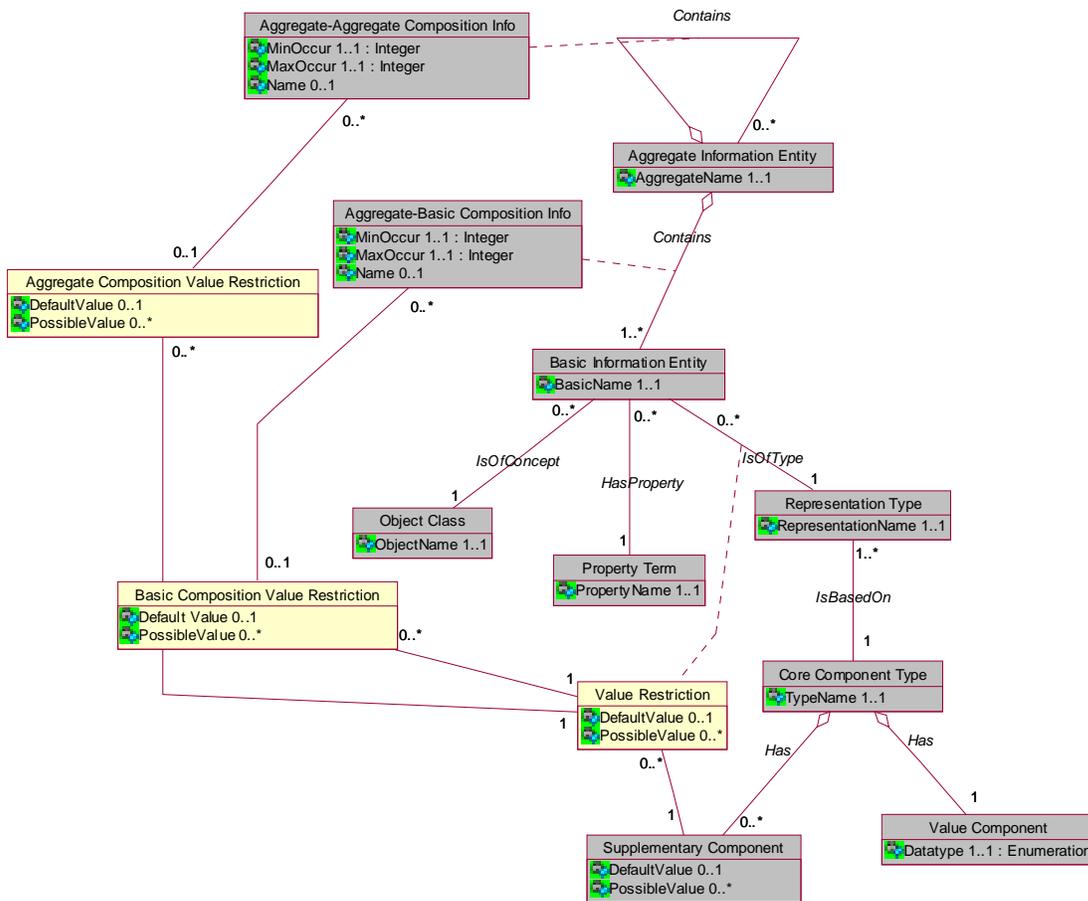
This metamodel focuses further on the composition of core components and their relation to Core Component Types.

To limit the complexity of the diagram some information has been hidden, namely the meta data of the Core Components and the fact that s Supplementary Component is a Basic Information Entity).

The following information has been added:

Value Restriction indicates the need to restrict the possible values of a Supplementary Component when you use a Representation Type (that is based on the Core Component Type) in a particular Basic Information Entity. An example may clarify this. If the Basic Information Entity is a Country.Identifier the list of possible Identifier Schemes of the corresponding Identifier Core Component Type must be restricted to Schemes of Country Codes.

The Basic and the Aggregate Composition Restriction make it possible to further restrict the possible values when a Basic Information Entity is used in an Aggregate Information Entity (directly or indirectly via another Aggregate Information Entity).

## 5.2  Classes and Attributes

### 5.2.1  Aggregate Composition Value Restriction
**Definition:**
Restriction on the possible values for a Supplementary Component of a Core Component Type when the corresponding Basic Information Entity is used indirectly (i.e. via another Aggregate Information Entity) in an Aggregate Information Entity.

**Attributes:**
**DefaultValue 0..1:**
**PossibleValue 0..*:**

### 5.2.2  Basic Composition Value Restriction
**Definition:**
Restriction on the possible values for a Supplementary Component of a Core Component Type when the corresponding Basic Information Entity is used in an Aggregate Information Entity.

**Attributes:**
**Default Value 0..1:**
**PossibleValue 0..*:**

### 5.2.3  Value Restriction
**Definition:**
Restriction on the possible values for a Supplementary Component of a Core Component Type when the corresponding Basic Information Entity is based on this Core Component Type.

Example:
The Basic Information Entity "Financial Account.Country.Identifier" could restrict the allowed value of the "Identification.Scheme.Name" to "ISO list of country codes.".

Remarks:
There are two possibilities:
1. If the value of the Supplementary Component is fixed the Representation Type can be specialised (e.g. "ISO Country Identifier").
2. If the value of the Supplementary Component is not fixed, the user will have to specify the value of the Supplementary Component each time he uses the Basic Information Entity.

**Attributes:**
**DefaultValue 0..1:**
**PossibleValue 0..*:**

# 6  Core Components Metadata

## 6.1  Diagram
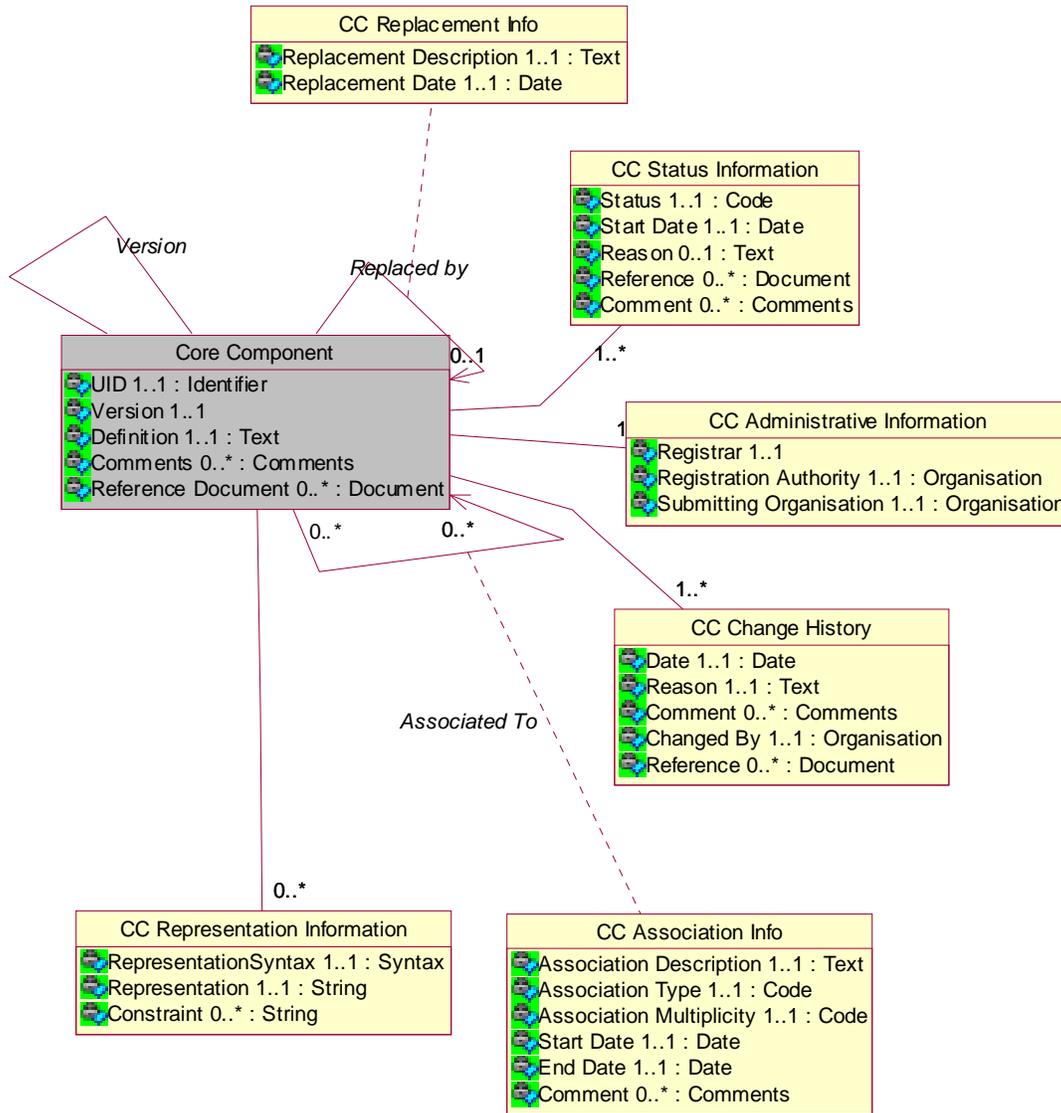


This metamodel focuses on the additional meta-information that needs to be defined for Core Components.
To simplify the diagram  all information regarding the structure of a Core Component has been hidden.
The diagram contains following information:
Even though at any given point in time only one version of a Core Component should be valid, multiple previous version my have existed. The "Version" association makes it possible to link the consecutive versions of a Core Component.

A Core Component may be replaced by another Core Component at some point in time. The "Replaced by" association makes it possible to do this and "CC Replacement Info" makes it possible to document the date and reason of replacement.
A Core Component may be associated to multiple other Core Components (e.g. to indicate that there is a relation between an Organisation ands a Postal Address). The "Associated To" association can be used for this and "CC Association  Info" can be used to document  additional information about the association.
CC Administrative Information contains  information about the registration of the Core Component.
CC Change History makes it possible to document all changes that are made to a Core Component.
CC Representation Info can be used to document the physical representation of a Core Component in a particular syntax representation (e.g. to document the XML-tag of a Basic Information Entity).

## *6.2   Classes and Attributes*

### 6.2.1   CC Administrative Information
**Definition:**
Administrative information regarding a core component

**Attributes:**
**Registrar 1..1:** Name of the responsible person who has created the core component in the repository
**Registration Authority 1..1:** Organisation authorised to register the element.
**Submitting Organisation 1..1:** The organisation that has submitted / requested the core component

### 6.2.2   CC Association Info
**Definition:**
Information about the association between two core components.

**Attributes:**
**Association Description 1..1:** Description of the association
**Association Type 1..1:** Type of association
**Association Multiplicity 1..1:** Cardinality of the association
**Start Date 1..1:** Date at which the association becomes valid
**End Date 1..1:** Date from which the association is no longer valid
**Comment 0..*:** Relevant information about the association (e.g. reason why it has been removed, ...)

### 6.2.3   CC Change History
**Definition:**
History of the modifications applied to a core component version.

**Attributes:**

**Date 1..1:** Date on which the modification has been made
**Reason 1..1:** Description of why the core component has been modified.
**Comment 0..*:** Remark about the core component modification.
**Changed By 1..1:** Name of the organisation that is responsible for the modification of the core component
**Reference 0..*:** Document containing relevant information about the modification.

### 6.2.4  CC Replacement Info
**<u>Definition:</u>**
Information about the replacement of a core component by another.

**<u>Attributes:</u>**
**Replacement Description 1..1:** Reason for the core component being replaced
**Replacement Date 1..1:** Date from which the replacement is effective

### 6.2.5  CC Representation Information
**<u>Definition:</u>**
Information about the physical representation of a core component in a particular syntax

**<u>Attributes:</u>**
**RepresentationSyntax 1..1:** Identification of the representation syntax
**Representation 1..1:** Physical representation of the core component (e.g. XML-tag)
**Constraint 0..*:** Description of constraints that apply to the representation of the core component in the given syntax (e.g. maximum length, ...)

### 6.2.6  CC Status Information
**<u>Definition:</u>**
History of the lifecycle of a particular version of a core component

**<u>Attributes:</u>**
**Status 1..1:** Status of the core component (e.g. draft, proposed, registered, retired, ...)
**Start Date 1..1:** Date on which the status comes into effect
**Reason 0..1:** Description of why the core component status has been changed.
**Reference 0..*:** Document containing relevant information about the status change.
**Comment 0..*:** Remark about the core component status.

# 7  Introducing Context

## *7.1  Diagram*

**Full Context**

**Context**
- Value

1..*     0..*     1

**Context Driver**
- Name 1..1
- Definition 1..1 : Text

0..*

**Context Information Entity**
- Business Term 0..*
- Example 0..*
- Definition 0..1 : Text

**Aggregate-Aggregate Context Info**
- Context MinOccur 0..1 : Integer
- Context MaxOccur 0..1 : Integer
- Context Name 0..1

**Basic-Aggregate Context Info**
- Context MinOccur 0..1 : Integer
- Context MaxOccur 0..1 : Integer
- Context Name 0..1

*Contains*

**Aggregate-Aggregate Composition Info**
- MinOccur 1..1 : Integer
- MaxOccur 1..1 : Integer
- Name 0..1

**Aggregate-Basic Composition Info**
- MinOccur 1..1 : Integer
- MaxOccur 1..1 : Integer
- Name 0..1

0..*

**Aggregate Information Entity**
- AggregateName 1..1

0..*

*Contains*

**Context Basic Composition Value Restriction**
- DefaultValue 0..1
- PossibleValue 0..*

1..*

**Basic Information Entity**
- BasicName 1..1

**Context Aggregate Composition Value Restriction**
- DefaultValue 0..1
- PossibleValue 0..*

**Information Entity**
- Acronym 0..*
- Keyword 0..*

**Basic Composition Value Restriction**
- Default Value 0..1
- PossibleValue 0..*

0..1     0..*

*IsOfType*

**Aggregate Composition Value Restriction**
- DefaultValue 0..1
- PossibleValue 0..*

0..1

**Representation Type**
- RepresentationName 1..1

1     1..*

**Value Restriction**
- DefaultValue 0..1
- PossibleValue 0..*

*IsBasedOn*

1

**Core Component**
- UID 1..1 : Identifier
- Version 1..1
- Definition 1..1 : Text
- Comments 0..* : Comments
- Reference Document 0..* : Document

**Context Value Restriction**
- DefaultValue 0..1
- PossibleValue 0..*

**Core Component Type**
- TypeName 1..1

*Has*     *Has*

1     0..*

**Supplementary Component**
- DefaultValue 0..1
- PossibleValue 0..*

1

**Value Component**
- Datatype 1..1 : Enumeration

This metamodel focuses on Context.

To simplify the diagram information that is not context-dependent has been hidden.

A "Full Context" is defined by a combination of any number of values for context drivers (e.g. Industry=Automotive, Country=US).

A context can then influence following information:

- Definition, Business Terms and Examples of an Information Entity.

- Composition of an Information Entity in another.

- Allowed values of a Basic Information Entity (directly or when used in an Aggregate Information Entity (directly or indirectly via another Aggregate Information Entity)


## 7.2  Classes and Attributes


### 7.2.1  Aggregate-Aggregate Context Info
**Definition:**

Influence of a particular full context on the additional information when an Aggregate Information Entity is used in another Aggregate Information Entity.


**Attributes:**

**Context MinOccur 0..1:**
**Context MaxOccur 0..1:**
**Context Name 0..1:**

### 7.2.2  Basic-Aggregate Context Info
**Definition:**
Influence of a particular full context on the additional information when a Basic
Information Entity is used in an Aggregate Information Entity.

**Attributes:**
**Context MinOccur 0..1:**
**Context  MaxOccur 0..1:**
**Context Name 0..1:**

### 7.2.3  Context
**Definition:**
Value of a specific context driver.

**Attributes:**
**Value:**

### 7.2.4  Context Aggregate Composition Value Restriction
**Definition:**
Influence of a particular full context on the restriction on the possible values for a
Supplementary Component of a Core Component Type when the corresponding Basic
Information Entity is used indirectly (i.e. via another Aggregate Information Entity) in an
Aggregate Information Entity.

**Attributes:**
**DefaultValue 0..1:**
**PossibleValue 0..*:**

### 7.2.5  Context Basic Composition Value Restriction
**Definition:**
Influence of a particular full context on the restriction on the possible values for a
Supplementary Component of a Core Component Type when the corresponding Basic
Information Entity is used in an Aggregate Information Entity.

**Attributes:**
**DefaultValue 0..1:**
**PossibleValue 0..*:**

### 7.2.6  Context Driver
**Definition:**
A category of context.

**Attributes:**
**Name 1..1:**
**Definition 1..1:**

### 7.2.7  Context Information Entity
**Definition:**
Specific information about a Core Component in a given full context.

**Attributes:**
**Business Term 0..*:** Other usual name given to the Core Component.
**Example 0..*:**
**Definition 0..1:** Context dependent definition of a Core Component.

### 7.2.8  Context Value Restriction
**Definition:**
Influence of a particular full context on the restriction on the possible values for a Supplementary Component of a Core Component Type when the corresponding Basic Information Entity is based on this Core Component Type.

**Attributes:**
**DefaultValue 0..1:**
**PossibleValue 0..*:**

### 7.2.9  Full Context
**Definition:**
Unique and meaningful combination of values for context drivers.

**Attributes:**

# 8  Used types

## 8.1  Diagram

### Comments
- Type of Comments 1..1 : C...
- Text 1..1 : Text

### Document
- Title 1..1 : Text
- Reference 0..1
- Publication Date 0..1 : [...
- Author 0..1
- URL 0..1

### Example
- Value 1..1
- Reference 0..* : Docum...

### Organisation
- Identifier 1..1 : Identifier
- Name 1..1
- Additional Information 0..1 : ٦...

### Syntax
- Name 1..1
- Base Syntax 1..1 : Enumer:...
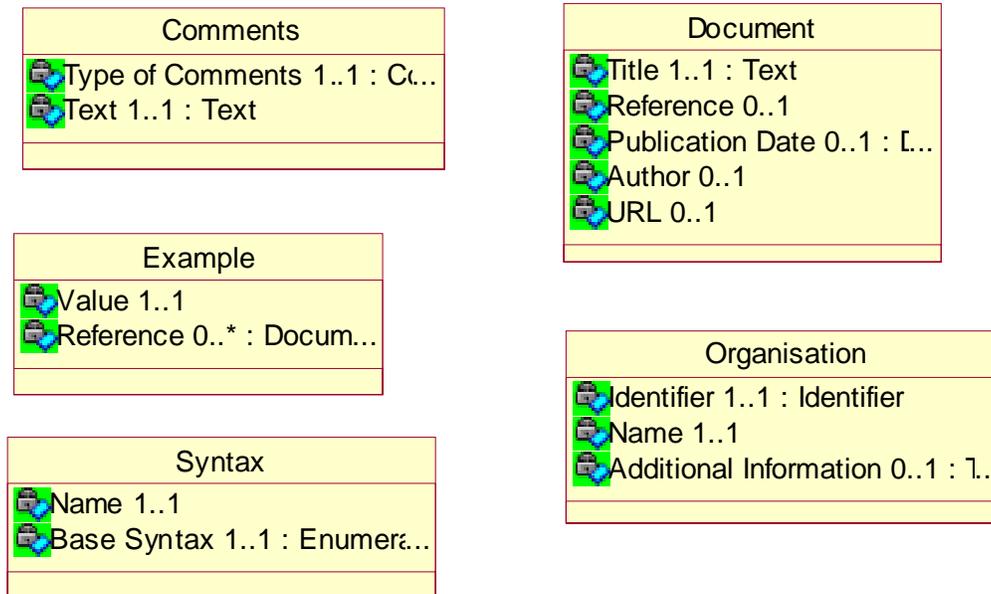
## *8.2 Classes and Attributes*

### 8.2.1 Comments
**Definition:**


**Attributes:**
**Type of Comments 1..1:**
**Text 1..1:**

### 8.2.2 Document
**Definition:**


**Attributes:**
**Title 1..1:**
**Reference 0..1:**
**Publication Date 0..1:**
**Author 0..1:**
**URL 0..1:**

### 8.2.3 Example
**Definition:**

**Attributes:**
**Value 1..1:**
**Reference 0..*:**

## 8.2.4  Organisation
**Definition:**


**Attributes:**
**Identifier 1..1:**
**Name 1..1:**
**Additional Information 0..1:**

## 8.2.5  Syntax
**Definition:**


**Attributes:**
**Name 1..1:**
**Base Syntax 1..1:**