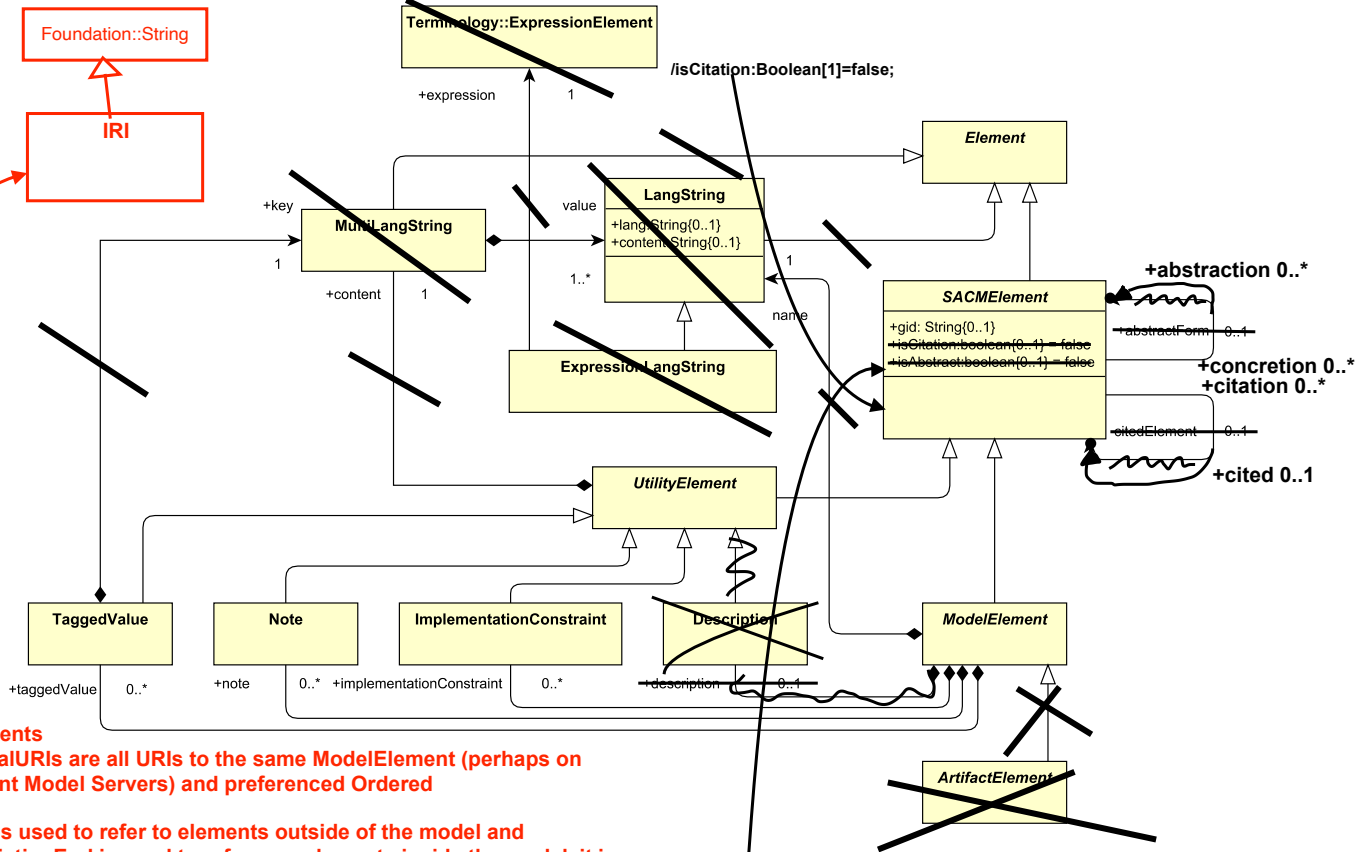


9 ~~8~~ Structured Assurance Case Base Classes

9 ~~8.1~~ General

This chapter presents the normative specification for the SACM Base Metamodel. It begins with an overview of the metamodel structure followed by a description of each element.



Comments
 externalURIs are all URIs to the same ModelElement (perhaps on different Model Servers) and preferred Ordered
 "**IRI" is used to refer to elements outside of the model and AssociationEnd is used to reference elements inside the model, it is a URL that can be internationalized

Figure 8.1 - Structured Assurance Case Base Classes Diagram

The Structured Assurance Case Base Classes express the foundational concepts and relationships of the base elements of the SACM metamodel and are utilized, through inheritance, by the bulk of the rest of the Structured Assurance Case Metamodel.

attributes
 +abstractionIRI : IRI [0..*] {ordered}
 +citedIRI : IRI [0..*] {ordered}
 +isSACMAbstract : Boolean [0..1] = false
 +description : ExpressionLangString [0..1]
 +elementName : ExpressionLangString [0..1]
 /name : String [0..1]

8.2 SACMElement (abstract)

SACMElement is the base class for SACM.

Superclass

MOF:Element

~~/isCitation:Boolean[1]=false;~~

Attributes

~~/name:String[1] (composition) – the derived name of the SACMElement, which is the first element of elementName.~~

~~gid:String[0..1] – a unique identifier that is unique within the scope of the model instance~~

~~isCitation[0..1]=false – a flag to indicate whether the SACMElement cites another SACMElement.~~

~~isSACMAbstract:Boolean~~

~~isAbstract[0..1]=false – a flag to indicate whether the SACMElement is considered to be abstract. For example, this can be used to indicate whether an element is part of a pattern or template.~~

Associations:

~~elementName:ExpressionLangString[0..*] – the multi-language name of this SACMElement.~~

~~citedElement:SACMElement[0..1] – a reference to another SACMElement that the SACMElement cites~~

~~abstraction~~

~~abstractForm:SACMElement[0..1] – an optional reference to another abstract SACMElement to which this concrete SACMElement conforms.~~

~~description: ExpressionLangString [1] – the name of the SACMElement.~~

Semantics

~~abstractionIRI:IRI[0..*] {ordered} – An IRI reference to an abstract element in another model.
citedIRI:IRI[0..*] {ordered} – An IRI reference to an cited element in another model.~~

All the elements of a structured assurance case effort created with SACM correspond to a SACMElement.

Constraints:

~~If citedElement is populated, isCitation must be true. OCL: self.citedElement <> null implies self.isCitation = true~~

~~When +abstractForm is used to refer to another SACMElement, +isAbstract of the SACMElement is false, and the +isAbstract of the referred SACMElement should be true. The referred SACMElement should be of the same type of the SACMElement. If ImplementationConstraints are expressed on the referred SACMElement, the SACMElement should satisfy these ImplementationConstraints.~~

~~{abstraction->notEmpty() implies abstraction.isSACMAbstract=true},
cited->notEmpty() implies oclTypeOf(cited),
elementName->notEmpty() and elementName->content->notEmpty() implies name=elementName->content->first(), cited->notEmpty() and
cited.isSACMAbstract=true implies isSACMAbstract=true}~~

9 8.3 LangString

~~LangString is the format SACM uses for description. It serves the same purpose as String but with the additional specification of the language used for the content.~~

Superclass

~~MOF:Element~~

Attributes

~~lang:String[0..1] – a field to indicate the language used in the string.~~

~~content:String[0..1] – the content of the string~~

Semantics

~~LangString serves the same purpose as String, SACM uses LangString for description, which containing the information of the language it uses in the content.~~

Move to Terminology Class

9 8.4 ExpressionLangString

~~ExpressionLangString is used to denote a structured expression, it contains a description (LangString) and it also (optionally) points to an ExpressionElement in the Terminology Package.~~