

XML in the Development of Component Systems

Meta-Object Facility: Meta Classes

MOF Specification

- MOF 1.4: OMG document formal/2002-04-03

Structure of the MOF Model

- package “Model”
 - imports package “PrimitiveTypes” (Boolean, Integer, String)

Core Abstract Classes

- ModelElement: base class of all meta-meta-classes
- Namespace: base class of all “scope like” classes
- GeneralizableElement: base class of all “inheritable” classes
- Classifier: base class of all classes denoting “types”
- TypedElement: base class of all classes “having a type”

Core Associations

- Contains: ModelElement <-> Namespace
 - restricted wrt. container
 - e.g. packages must not contain operations, classes must not contain association ends
- Generalizes: GeneralizableElement <->GeneralizableElement
- IsOfType: TypedElement <->Classifier
- DependsOn: ModelElement <->ModelElement

ModelElement

- base Class: None
- abstract: yes
- attributes:
 - name
 - qualifiedName
 - annotation
- references:
 - container (of Contains)
 - requiredElements (of DependsOn)
 - constraints (of Constraints)

Namespace

- base class: ModelElement
- abstract: yes
- references:
 - contents (of Contains)

GeneralizableElement

- base class: Namespace
- abstract: yes
- attributes:
 - isRoot
 - isLeaf
 - isAbstract
 - visibility (Typ: VisibilityKind)
- references:
 - supertypes (of Generalizes)

TypedElement

- base class: ModelElement
- abstract: yes
- references:
 - type (of IsOfType)

Classifier

- base class: GeneralizableElement
- abstract: yes

Class

- base class: Classifier
- abstract: no
- ContainedElements: Class, DataType subtypes, Attribute, Reference, Operation, Exception, Constraint, Constant, Tag
- attribute:
 - isSingleton

Data Type

- base class: Classifier
- abstract: yes
- concrete specializations:
 - PrimitiveType
 - CollectionType
 - EnumerationType
 - AliasType
 - StructureType

Feature

- base class: ModelElement
- abstract: yes
- attribute:
 - scope (type: ScopeKind, instance_level, classifier_level)
 - visibility

StructuralFeature

- base type: Feature, TypedElement
- abstract: yes
- attributes:
 - multiplicity (MultiplicityType)
 - isChangeable

Attribute

- base type: StructuralFeature
- abstract: no
- attributes:
 - isDerived

Reference

- base type: StructuralFeature
- abstract: no
- references:
 - exposedEnd (of Exposes)
 - referencedEnd (of RefersTo)

BehaviouralFeature

- base type: Feature, Namespace
- abstract: yes

Operation

- base type: BehaviouralFeature
- abstract: no
- Attribute:
 - isQuery
- References:
 - exceptions (of CanRaise)

Exception

- base type: BehaviouralFeature
- abstract: no

Association

- base type: Classifier
- abstract: no
- attribute:
 - isDerived

AssociationEnd

- base type: TypedElement
- abstract: no
- attribute:
 - isNavigable
 - aggregation (type: AggregationKind)
 - multiplicity (MultiplicityType)
 - isChangeable

Package

- base type: GeneralizableElement
- abstract: no

Import

- base type: ModelElement
- abstract: no
- attribute:
 - visibility
 - isClustered
- references:
 - importedNamespace (of Aliases)

Parameter

- base type: TypedElement
- abstract: no
- attribute:
 - direction (DirectionKind)
 - multiplicity (MultiplicityType)

Constraint

- base type: ModelElement
- abstract: no
- attribute:
 - expression (String)
 - language (String)
 - evaluationPolicy (EvaluationKind)
- references:
 - constrainedElements (of Constrains)

Constant

- base type: TypedElement
- abstract: no
- attribute:
 - value (String)

Tag

- base type: ModelElement
- abstract: no
- attribute:
 - tagId (String)
 - values (String)
- references:
 - elements (of AttachesTo)