# Development Plan for a Papyrus based Editor for TDL

The goal is to specialize two editors: sequence diagram editor for the Test Description edition and class diagram editor for the Data Definition edition and the TestConfiguration edition.

## Diagram Specialization

These diagrams will allow creation of the UML Profile 4 TDL (UP4TDL) realized by STF492.

We describe here the specialization within a scope of a first step implementation. This first step implementation do not contain element from the Time section of the meta-model. The description consists on a list of elements with their related graphical representation. Other Limitation : everything is in the same package;

### Class diagram specialization: TDL Structure diagram

#### Specialization of Class Diagram from Foundations :

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Element to represent** | **Base UML metaclass** | **Is the base metaclass in the diagram?** | **With the same representation?** | **If not: target representation?** |  |  |  |
| UP4TDL::Comment | UML::Comment | yes | yes |  |  |  |  |
| UP4TDL::Annotation | UML::Comment | yes | no | |  | | --- | |  | |  |  |  |
| UP4TDL::AnnotationType | UML::PrimitiveType | yes | yes |  |  |  |  |

#### From Data Declaration

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| UP4TDL::DataResourceMapping | UML::Class | yes | yes | |  | | --- | |  | |
| UP4TDL::DataElementMapping | UML::AssociationClass | yes | yes |  |
| UP4TDL::SimpleDataType | PrimitiveType | yes | yes |  |
| UP4TDL::SimpleDataInstance | InstanceSpecification | yes | yes | |  | | --- | |  | |
| UP4TDL::Action | UML::OpaqueBehavior | no | no |  |
| UP4TDL::Function | UML::FunctionalBehavior | No | no |  |
| UP4TDL::Variable | UML ::Property | Yes | No | ? |

#### From TestConfiguration Section

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| UP4TDL::TestConfiguration | UML::StructuredClassifier | no | no | |  | | --- | |  | |
| UP4TDL::ComponentType | UML::Component | yes | yes |  |
| UP4TDL::GateType | UML::Component | no | no |  |
| UP4TDL::GateInstance | UML::Port | no | no |  |
| UP4TDL::GateReference | UML::ConnectorEnd | no | no | GateReference grahical representation is not defined |
| UP4TDL::Connection | UML::Connector | no | no | |  | | --- | |  | |
| UP4TDL::ComponentInstance | UML::Property | No | no |  |

### Sequence diagram specialization: TDL behavior diagram

#### From Foundation

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Element to represent** | **Base UML metaclass** | **Is the base metaclass in the diagram?** | **With the same representation?** | **If not: target representation?** |  |  |  |
| UP4TDL::TestObjective | UML::Comment | no | No |  |  |  |  |
| UP4TDL::Comment | UML::Comment | yes | yes |  |  |  |  |
| UP4TDL::Annotation | UML::Comment | yes | no | |  | | --- | |  | |  |  |  |
| UP4TDL::AnnotationType | UML::PrimitiveType | no | no |  |  |  |  |

#### From BehaviorSection

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| TDL::ComponentInstance | UML::Property | no | no | |  | | --- | |  | |
| TDL::TestDescription | UML::BehavioredClassifier | no | no |  |
| TDL::BehaviourDescription | UML::Interaction | yes | no | see TestDescription |
| TDL::Block | UML::InteractionOperand | yes | no |  |
| TDL::CombinedBehaviour | UML::CombinedFragment | yes | no |
| TDL::CompoundBehaviour | UML::CombinedFragment | yes | no |  |
| TDL::AlternativeBehavior | UML::CombinedFragment | yes | no |  |
| TDL::ParallelBehavior | UML::CombinedFragment | yes | no |  |
| TDL::ExceptionalBehavior | InteractionOperand | yes | no | see CombinedFragment |
| TDL::PeriodicBehaviour | InteractionOperand | yes | no | |  | | --- | |  | |
| Interaction | UML::Message | yes | yes |  |
| ActionReference | UML::BehaviorExecutionSpecification | no | no |  |
| VerdictAssignment | OccurrenceSpecification | no | no | |  | | --- | |  | |

Expected time for Diagram specialization implementation : 10 men.days

## Static Profile Implementation

In the static profile implementation we compute the derivated properties. It seems to me the only derivated property is the qualifiedName of the NamedElement

## ElementType Implementation

In ElementType are written the behavior of the editor when manipulating elements of the profile

|  |  |  |
| --- | --- | --- |
| **Element** | **Specific Behavior to add** | **Comment** |
| UP4TDL::Element | Attach/Detach an Annotation | Symmetric attachment to the Annotation |
| Attach/Detach a Comment | Symmetric attachment to the Comment |
| Edit the name of an Element |  |
| UP4TDL::Comment | Attach/Detach to an Element | Symmetric attachment to the Element |
| UP4TDL::Annotation | Creation/Deletion | Also remove from the annotated Element |
| Attach/detach an AnnotationType |  |
| Attach/Detach to an Element | Symmetric attachment to the Element |
| Edit value |  |
| UP4TDL::TestObjective | Edit objectiveURI |  |
| Edit Description |  |
| UP4TDL::DataResourceMapping | Edit resourceURI |  |
| UP4TDL::DataElementMapping | Edit elementURI |  |
| Attach/Detach DataResourceMapping |  |
| Attach/Detach mappable DataElement |  |
| Add/remove ParameterMapping | Doing both edition of the parameterMapping and creations at the same time |
| UP4TDL::ParameterMapping | Edition of the ParameterMappingLabel and Creation of ParameterMapping from a DataElementMapping | Using embedded Xtext Editor; automatically assign memberURI and parameter |
| AttachDetach memberURI |  |
| Attach/detach parameter |  |
| UP4TDL::DataInstance | Attach/Detach dataType |  |
| UP4TDL::Parameter | Attach/Detach dataType |  |
| UP4TDL::Variable | Attach/Detach dataType |  |
| UP4TDL::Function | Attach/Detach a returnType | By default Null  Automatically generate a UML::parameter with this type |
| UP4TDL::DataUse | Attach argument | All DataUse operations (and its specialization) shall be done through an embedded Xtext editor |
| UP4TDL::ParameterBinding | Edit dataUse |  |
|  | Edit parameter |  |
| UP4TDL::DataInstanceUse | Attach data |  |
| UP4TDL::FunctionCall | Attach function |  |
| UP4TDL::FormalParameterUse | Attach formalParameter |  |
| UP4TDL::VariableUse | Attach Variable |  |
| Attach Component |  |
| UP4TDL::GateType | Add/remove a dataType |  |
| UP4TDL::GateInstance | Attach/detach a GateType | Update the lifelines on BehaviorDescriptions associated to this TestConfiguration |
| UP4TDL::ComponentType | Add/remove a timer |  |
| Add/remove a variable |  |
| Add/remove a GateInstance |  |
| UP4TDL::ComponentInstance | Attach/detach type | Update the lifelines on BehaviorDescriptions associated to this TestConfiguration |
| Attach/detach role |  |
| UP4TDL::GateReference | Attach/detach component |  |
| Attach/detach gate |  |
| UP4TDL::Connection | Attach/detach first endpoint | Shall the gateReference be contained in connection? |
| Attach/detach second endpoint |  |
| UP4TDL::TestConfiguration | Add/remove a componentInstance |  |
| Add/remove a connection |  |
| UP4TDL::TestDescription | Attach/detach testConfiguration | Automatic generation of BehaviourDescription with its lifelines on the attachment; |
| Add/remove a testObjective |  |
| Add/remove a formalParameter |  |
| UP4TDL::BehaviorDescription | Attach/detach behavior |  |
| UP4TDL::Behavior | Add/remove testObjective |  |
| UP4TDL::Block | Add/remove a behavior | Automatic completion of GeneralOrdering for its contained OccurenceSpecification |
| Add/remove a guard | Through xtext edition |
| UP4TDL::CombinedBehavior | Add/remove periodic | Automatic update of GeneralOrdering for its contained OccurenceSpecification |
| Add/remove periodic | Automatic update of GeneralOrdering for its contained OccurenceSpecification |
| Add/remove exceptional | Automatic update of GeneralOrdering for its contained OccurenceSpecification |
| UP4TDL::SingleCombinedBehavior | Attach/detach block | Automatic update of GeneralOrdering for its contained OccurenceSpecification |
| UP4TDL::MultipleCombinedBehavior | Add/remove a block | Update of GeneralOrdering on deletion |
| UP4TDL::PeriodicBehavior | Attach/detach a block |  |
| Attach/detach period | Through xtext edition |
| UP4TDL::VerdictAssignment | Attach/detach verdict | (xtext edition does not seem necessary) |
| UP4TDL::Interaction | Creation/Deletion | From source lifeline; generate source gate  To first target lifeline; generate first target  (and associated MessageOccurenceSpecifications) |
| Add target | Selection of variable to store the argument |
| Edit argument | Xtext edition |
| Edit isTrigger |  |
| UP4TDL::Target | Add/remove variable |  |
| UP4TDL::ActionBehavior | Add/remove ComponentInstance | Automatically generate  OccurenceSpecification covering all lifelines related to gateReference of gate of this componentinstance |
| UP4TDL::ActionReference | Attach/detach Action |  |
| Edit actualParameter | Xtext edition? |

Expected time for ElementType Implementation : 12 men.days