

as indicated by connector DD, by an Operations Handler, as indicated by connector EE, and by a Constraints Handler, as indicated by connector FF, respectively, of the Interface Impl Generator.

[0506] The Attribute Handler, Operation Handler and Constraints Handler of the Interface Impl Generator create Attribute Implementations, Operation Implementations, and Constraint Implementations, respectively, of the Interface Implementation. The Interface Implementation also includes a pointer to the Interface Descriptor of which the Interface Implementation is an implementation.

[0507] The Attribute Implementations, Operation Implementations, and Constraint Implementations of the Interface Implementation create Attribute Instances, Operation Instances, and Constraint Instances, respectively, of the Interface Instance. The Interface Instance also includes a pointer to the Interface Implementation of which the Interface Instance is an instance.

[0508] In FIGS. 30 and 31, a Model is read by a Model Handler, creates a Model Descriptor, is read by a Model Impl(ementation) Generator, as indicated by connector GG, creates an implementation of a Model Implementation, and creates an instance of a Model Instance. A Name, Documentation, Visibility, Active, Abstract, Root, Leaf, Attributes, Operations, Template Parameters, Constraints, Tagged Values, and Code Language of the Model are handled by a Name Handler, a Documentation Handler, a Stereotype Handler, a Visibility Handler, an Active Handler, an Abstract Handler, a Root Handler, a Leaf Handler, an Attributes Handler, an Operations Handler, a Template Parameters Handler, a Constraints Handler, a Tagged Values Handler, and a Language Handler, respectively, of the Model Handler.

[0509] The Name Handler, Documentation Handler, Stereotype Handler, Visibility Handler, Active Handler, Abstract Handler, Root Handler, Leaf Handler, Attributes Handler, Operations Handler, Template Parameters Handler, Constraints Handler, and Tagged Values Handler, map to the Name, Description, Stereotype, Visibility, Active, Abstract, Root, Leaf, Interface Descriptors, Attribute Descriptors, Operation Descriptors, Constraint Descriptors and Hint Instances, respectively, of the Model Descriptor. The Language Handler of the Model Handler looks up a role in the Metamodel Repository. The Model Handler uses the Metamodel Repository to lookup up a role in the Language Role that creates an instance of the language role (Role Instance<1>) of Role Instances of the Model Descriptor.

[0510] The Interface Descriptors, Attribute Descriptors, Operation Descriptors, and Constraint Descriptors are read by an Interface Handler, as indicated by connector HH, by an Attribute Handler, as indicated by connector II, by an Operations Handler, as indicated by connector JJ, and by a Constraints Handler, as indicated by connector KK, respectively, of the Model Impl Generator.

[0511] The Interfaces Handler, Attribute Handler, Operation Handler and Constraints Handler of the Model Impl Generator create Interface Implementations, Attribute Implementations, Operation Implementations, and Constraint Implementations, respectively, of the Model Implementation. The Model Implementation also includes a pointer to the Model Descriptor of which the Model Implementation is an implementation.

[0512] The Attribute Implementations, Operation Implementations, and Constraint Implementations of the Model Implementation create Attribute Instances, Operation Instances, and Constraint Instances, respectively, of the Model Instance. The Model Instance also includes a pointer to the Model Implementation of which the Model Instance is an instance.

[0513] In FIGS. 32, 33 and 34 a user defines a Metapackage Descriptor including a Name, a Description and Attribute Descriptors. The Metapackage descriptor is read by a Metapackage Impl(ementation) Generator, as indicated by connector LL, creates a Metapackage Implementation, which creates a Metapackage Instance which is synonymous with a Package Descriptor, as indicated by connector OO, respectively. Attribute Descriptors of the Metapackage Descriptor are read by an Attribute Handler, as indicated by connector MM, of the Metapackage Impl Generator. The Metapackage Descriptor saves to the Metamodel Repository (specifically the meta-metamodel repository section of the metamodel repository).

[0514] A Package is read by a Package Handler, creates a Package Descriptor, creates a Package Instance, as indicated by connector NN, creates a Package Implementation, creates a Package Impl(ementation) Generator, and is read by a Package Descriptor, as indicated by connector UU, respectively. A Name, Documentation, Visibility, Constraints, and Tagged Values, of the Package are handled by a Name Handler, a Documentation Handler, a Visibility Handler, a Constraints Handler, and a Tagged Values Handler, respectively, of the Package Handler.

[0515] The Name Handler, Documentation Handler, Visibility Handler, Constraints Handler, and Tagged Values Handler, map to the Name, Description, Visibility, Constraint Instances and Hint Instances, respectively, of the Package Descriptor.

[0516] The Attribute Handler of the Metapackage Impl Generator creates Attribute Implementations of the Metapackage Implementation. Package Descriptor Attr(ributes), Models Descriptor Attr(ributes), Constraint Descriptor Attr(ributes), Tagged Value Descriptor Attribute Implementations, and Other Attr Impl<n> of the Attribute Handler of the Metapackage Implementations create a Package Descriptor, a Models Descriptor, a Tagged Values Descriptor, and Other Attribute<n>, respectively, of Attribute Instances of the Metapackage Instance. The Metapackage Implementation also includes a pointer to the Metapackage Descriptor of which the Metapackage Implementation is an implementation.

[0517] Package Descriptor, Models Descriptor, Tagged Values Descriptor, and Other Attribute<n> of other Attribute Instances of the Attribute Instances of the Metapackage instance are a Package Descriptor, as indicated by connector PP, a Models descriptor, as indicated by connector QQ, are Constraint Descriptors, as indicated by connector RR, are Tagged Values as indicated by connector SS, and are other Attributes, as indicated by connector TT, respectively, of the Package Descriptor.

[0518] The Packages, Models, Constraint Instances and Other Attribute Instances of the Package Instance create Package Implementations, Models Implementations, Constraint Implementations, and Attribute Implementations,