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UML-like Diagrams description and guidelines

Guidelines

The following guidelines are intended to be published on the YANGsters page in the <https://1.ieee802.org/yangsters/yangsters-guidelines/yangsters-faq/>

- The UML-like diagrams in IEEE 802.1 standards provide a graphical representation of the management model using a subset of the UML class diagram notation. (details below)
- The UML-like diagram is not meant to be a duplicate of the YANG tree for the model.
- The UML-Like diagrams available in IEEE 802.1 standards containing YANG provides:
 - The list of objects from the YANG
 - The datatype provide in the UML-like diagram, however, represents the semantics of the property not specifically the datatype used in the encoding of either the SNMP MIB or NETCONF YANG.
 - The accessibility of the object is listed
 - A clause/sub-clause can be listed but including the clause/sub-clause reference is not recommended because of maintainability issues.

Suggested Text

The following text is intended to be included in any standard that includes UML-like diagrams. The material could be in the introductory paragraphs of the clause/sub-clause that introduces the YANG models.

A UML-like representation of the management model is provided in the following subclauses. The purpose of an UML-like diagram is to express the model design on a single piece of paper. The structure of the UML-like representation shows the name of the object followed by a list of properties for the object. The properties indicate their type and accessibility. It should be noted that the UML-like representation is meant to express simplified semantics for the properties. It is not meant to provide the specific datatype as used to encode the object in either MIB or YANG. In the UML-like representation, a box with a white background represents information that comes from sources outside of the IEEE. A box with a gray background represents objects that are defined by this IEEE Standard.

UML-like Diagrams Description

The following description is intended to be published on the YANGsters page in the <https://1.ieee802.org/yangsters/yangsters-guidelines/yangsters-faq/> and/or as an appendix in any standard that contains UML-like diagrams.

The IEEE UML-like diagrams provide an easy to understand visualization of a model even for those that do not understand the formal UML modeling syntax.

A box is used to represent a class. A box can have multiple compartments. In most cases there will be a single-compartment box that represents a class or a two-compartment box that has a class name in the top box and the attributes for that class in the bottom box.

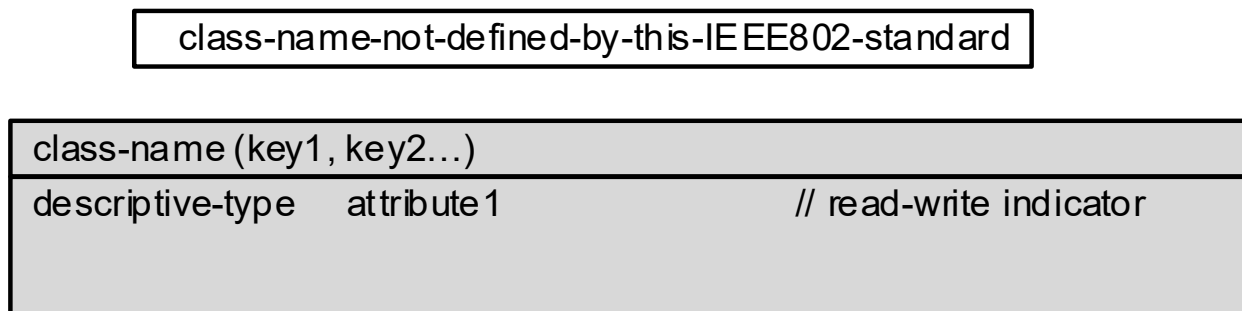


Figure 1 - example class/attribute boxes

In Figure 1, the white box with “class-name-not-defined-by-this-IEEE802-standard” is used to represent a class that is imported from another standard. The other example in Figure 1 shows a grey box that has a class (with keys listed if applicable) and a compartment for attributes. Figure 2 provides a small example.

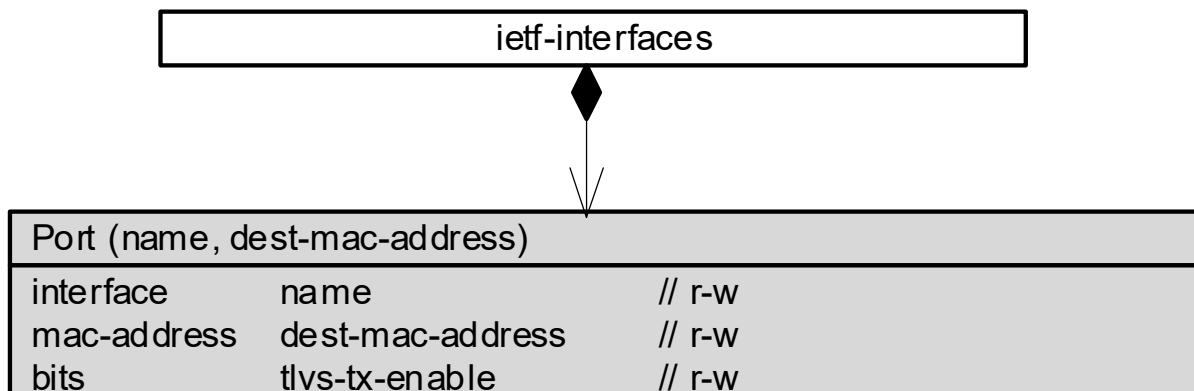


Figure 2 - class/attribute example

The arrows/diamonds/lines provide for composition, aggregation, or association relationships.

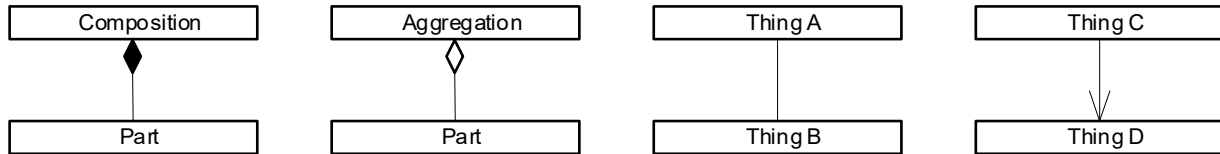


Figure 3 – relationships

In Figure 3, the “Composition” example shows a “has a” relationship. Composition is indicated by a filled diamond shape which is connected to the “parent” of the relationship. The Part is the “child” of the relationship. When the class (parent) that contains the part (child) is deleted, the part is deleted as well. For example, if I delete a folder from my computer, all the files are deleted too. The “Aggregation” example is a “has a” relationship as well, but in this case the parts can exist independently of the class that was aggregating the parts. For example, if a school course is deleted, the students still exist.

The other two diagrams in Figure 3 show associations. Thing A is associated with Thing B, meaning there is (some kind of) structural relationship, but no further detail is given. Thing C is associated with Thing D and it is possible to navigate to Thing D through Thing C. The arrows can be on both ends of the association if bi-directional navigation is desired.

Relationship to YANG

The UML-like diagram provides a great deal of latitude to provide the most concise information in a graphical way. There is no requirement to match the data types in YANG in the UML-like diagram. There is no formal mapping between the structure of the YANG and the structure of the UML-like diagram.