MBSE Instance Data

Friday, May 28, 2021 5:30 PM

Everything below is for parsing .cslx files
We can ignore the .sbsx files (outside of the profile) for now.

Prefix definitions for the content below:

data: http://data.pg.com/data/
pgont: http://ontologies.pg.com/pgontology

1. Iclass - Make _id an instance of _hid.
    a. Target Triples:
        1) data:<_id> rdf:type pgont:<_hid>
        2) data:<_id> rdfs:label "<_displayName>"
        3) pgont:<_hid> rdfs:label "<_hname>"

    b. _id
    c. _displayName
    d. Stereotypes
        1) IRPYRawContainer
            a) Ihandle
                a) _hm2Class
                b) _hsubsystem
                c) _hname
                    i) Get the name and use as the label just in case we have not seen this GUID before.
                d) _hid - this should already be NodeShape/Class
                    i) This is the GUID for the Stereotype
    e. AggregatesList
        1) value
            a) These are GUIDs that show what is contained in this class
            b) Navigate to the child objects via the GUID
2. Idependency - this defines a triple between whatever referenced this (Aggregates List) and what is defined in _dependsOn - exact triple is defined below.

    a. _id
    b. _name
    c. Stereotypes
        1) IRPYRawContainer
            i) Ihandle
            ii) _hm2Class
            iii) _hsubsystem
            iv) _hname
                i) Get the name and use as the label just in case we have not seen this GUID before.
            v) _hid - this should already be a Property
                i) This is the GUID for the Stereotype
                ii) This is also the GUID for the predicate of the triple. See _dependsOn/_dependent for the subject and object.

vi) TARGET TRIPLE:
i) pgont:<_hid> rdfs:label _hname

d. _dependsOn
1) INObjectHandle
a) _hname
b) _hid
i) This is the GUID of the Object of the triple

e. _dependent
1) INObjectHandle
a) _hid
i) This is the GUID of the Subject of the triple

f. Target Triple:
1) This comes from three parts
2) The triple looks like
a) _dependent Stereotype _dependsOn
b) So… data:<_hid> pgont:<_hid> data:<_hid> where each part of the triple comes from the section as defined in a) above.

g. AggregatesList
1) value
a) These are GUIDs that show what is contained in this class
b) Navigate to the child objects via the GUID

3. Iattribute - Make _id an instance of _hid.
a. The triples here are more complicated to explain so I will wait until I have some instance data for you.
b. _id
c. _name
d. _displayName
e. Stereotypes
1) IRPYRawContainer
a) Ihandle
a) _hm2Class
b) _hsubsystem
c) _hname
i) Get the name and use as the label just in case we have not seen this GUID before.
d) _hid - this should already be NodeShape/Class
i) This is the GUID for the Stereotype

f. AggregatesList
1) value
a) These are GUIDs that show what is contained in this class
b) Navigate to the child objects via the GUID
2) Follow to find
a) Itag
a) _name="OwnerGUID"
b) AggregatesList
i) To ILiteralSpecification (_id)
One. _value = Owner
First. Make a URI and create a composition relationship from the attribute to the Owner

4. IPart
5. IGeneralization
a. _dependsOn
1) INObjectHandle

a) _hname
b) _hid

b. AggregatesList
1) Follow to find the:
a) Derived End Tag - this is the subject
a) Navigate to the ILiteralSpecification to find the value
b) BaseEnd - this is the object
c) Use pgont:generalization to connect (for now)

6. IPort
a. These have no class definition defined in Meta_Classes for the referenced Stereotype
1) They are defined in SysML.sbs in the profile directory.
a) How to extract?
a) Manually create for now. We can use the aforementioned stereotype.
b. Ports are linked to a logical/physical system in the aggregates list for the parent object.
1) Need to process the aggregates lists to make these linkages.
a) Need to define the "types" of the aggregates that should be captured as most are ITags.

7. IInformationFlow
a. These depict the flow of something between objects.
1) For some, there is a stereotype that defines the kind of relationship between the nodes.
2) For others, there is a "conveyed" object that is flowing between the nodes. This version does not have a stereotype thus we need to define how to handle it.

8. ISysMLPort
a. The Stereotype of this object defines the class to which it is a member. Hopefully we have all of them.
b. Like IPort, these ports are linked to the parent objects via the parent object's aggregates list.