Tecgraf Report about the study of EDRC Use Case 2

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Summary

1. Introduction

This document describes the interpretation of the EDRC Use Case 2, about the files *pressure_transmitter_rfq_1.ttl* and *pressure_transmitter_rfq_1_reply.ttl*, which contains respectively RFQ information for one pressure transmitter and a reply to it.

For a matter of understanding, Section 2 presents the RFQ information for one pressure transmitter explaining separately the main templates and its instances. Section 3 follow the same approach, but for the reply to the RFQ information. Section 4 describes a proposal for solving the inconsistencies found in the *pressure_transmitter_rfq_1.ttl* and Section 5 shows a First Order Logic representation of the Object Declarations and the Templates Patterns used to construct the EDRC User Case 2.

Notes:

- All resources identifiers presented in this document are shortened, for instance, the resource id83f1614d-649b-4876-ae1e-34721972e9bc is being represented as "id83f…".
- All the cardinality number missed in the templates is being represented as "**[X]**"
- Different colors are used to show the resources: *yellow boxes* represents the templates and its instances, *blue boxes* brings the roles object of the templates and *gray boxes* show other templates that relates with the current template.

2. RFQ information for one pressure

The Request For Quotation information for one pressure transmitter file (*pressure_transmitter_rfq_1.ttl*) comprises the resources presented as follow. The templates and its instances in bold are presented in next sections.

Resource	rdf:type	Section
id69516a23-2029-4f05-a714-3d269cc78de5	dm:ClassOfActivity	
id7176e82f-fe79-43eb-b7c3-6f8132751085	dm:ClassOfArrangedIndividual	
id73806964-ca9a-4b2a-a997-13d6a57d4c6d	dm:ClassOfArrangedIndividual	
id83f1614d-649b-4876-ae1e-34721972e9bc	dm:ClassOfArrangedIndividual	
id0109f0bf-ac9d-411f-85cd-785ee3194d9e	dm:ClassOfInanimatePhysicalObject	
id05c6754c-b2b7-4a7f-89c1-5e31940b5516	dm:ClassOfInanimatePhysicalObject	
id05796c76-5f03-4e11-9a02-a1db079abec7	dm:ClassOfInanimatePhysicalObject	
id96b6298e-8fe2-4939-9609-5cd47e0f0516	dm:ClassOfInanimatePhysicalObject, pcardl:R-c898dddf-932e-4216-bf99-0f40df3847f4	
id20a39ca3-eb99-44be-aacf-8dae3b3f99cb	dm:ClassOfInformationRepresentation, pcardl:R-4d2153f8-2b65-4bee-9efb-a2fcac12f284 ("REQUEST FOR QUOTATION")	
id3dd5e9f4-f0ed-4e88-90e8-47cee5debf9c	dm:ClassOfInformationRepresentation, pcardl:R-a3107083-c97f-458d-aa24-d3785a0a1835 ("RFQ ITEM")	
id91a437fa-20de-470b-83d0-2cdfe4a61914	dm:FunctionalPhysicalObject	
idfdc37bd5-690c-4596-b603-677ba6f7d88a	**tpl:ClassificationOfIndividual**	**2.7**
idf2ad1e4e-7061-4a6a-867a-91f8e023a65b	**tpl:ClassifiedDefinitionOfClassOfIndividualWithInformationRepresentation**[1]	**2.8**
id1395ad4b-81d5-4f46-a90b-7593f98edd32	tpl:ClassifiedIdentificationOfIndividual	
id00394ae2-f71f-4d9b-b23e-0921320a2292	**tpl:ClassOfAssemblyDefinition**	**2.2**
id3ff4a9d3-be07-4679-84aa-e25c1daac45c		
idc10d6602-0aa9-4a71-8579-9e8c18dac8de	**tpl:ClassOfContainmentDefinition**	**2.5**
id1d2bf4dc-6b26-44a7-a5ba-96a4784ecd44	**tpl:ClassOfFeatureWholePartDefinition**	**2.6**
idef595e28-52b2-42fd-b714-1368087d85e7		
id7cbfe727-ba44-49fe-83d2-50c5edb17e5d	tpl:ClassOfIndividualHasIndirectPropertyWithBoundingValues	
id5a5afdec-c690-4a37-a869-6b33d15dd92a	tpl:ClassOfIndividualHasIndirectPropertyWithValue	
idf84912f2-0994-4ac5-b0b1-dd64376dd345		
id0c73c960-9164-46f3-959a-70a6fd5a31b2	**tpl:ClassOfParticipationDefinition**	**2.1**
id75fe4685-a1f7-4e88-b4c5-9b0a9fa707fa		
idc1b54729-7deb-4764-a16a-0a9d29b1582e	tpl:CompositionOfClassOfInformationRepresentation	
id1f575f73-ea84-43ab-8980-b647f73965d4	**tpl:SpecializationByCompoundType**	**2.3**
id24bb682e-d3c8-4245-999c-d31cf54f664a		
id0e7d3ad9-ab84-43f9-9f1a-9b980dfe7973	**tpl:SpecializationOfClassOfIndividual**	**2.4**
id42d99e6e-a100-4574-865b-dcb1761ef742		
id84217d48-1196-439b-8dfe-cfcd7376b08c		
idc5c4e0d5-f495-4fc8-96f3-5e8fb8944fb6		
idf9f811d7-6344-49f1-82aa-1da40a7c2db0		

2.1 Template ClassOfParticipationDefinition

The template specification is shown in http://15926.org/templatespecs/CL-ACTIV-01.xml.

The template roles are the following (see link above):

Role No	Role Name	Role Object Type
1	hasActivityType	dm:ClassOfActivity
2	hasParticipantType	dm:ClassOfIndividual
3	hasParticipantRole	dm:Role
4	hasDefined	dm:ClassOfParticipation
5	hasCardinalityOfActivity	dm:Cardinality
6	hasCardinalityOfParticipant	dm:Cardinality

Figure 1 shows the two ClassOfParticipationDefinition template instances of the pressure_transmitter_rfq_1.ttl file.

[1] This template is present on the EDRC Use Case 2 Technical Documentation using the previous name, "ClassifiedDefinitionOfClassOfIndividualByCOIR".

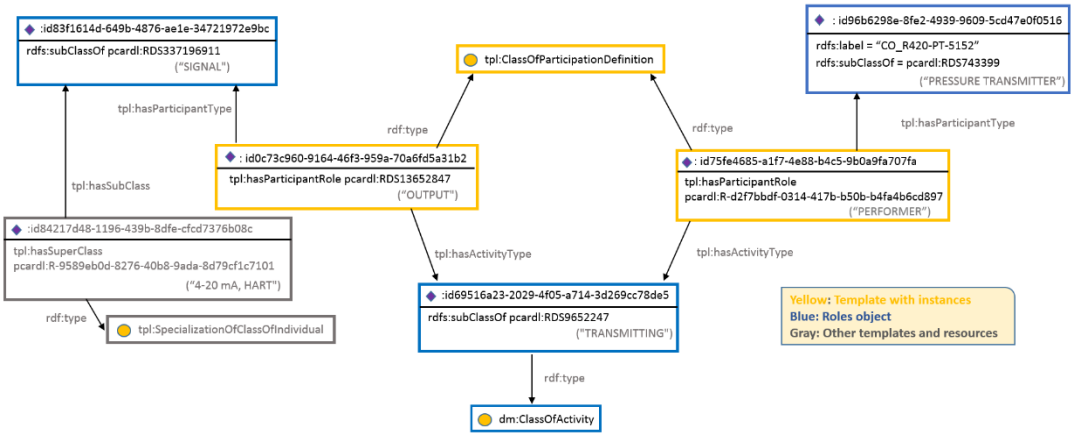

Figure 1 ClassOfParticipationDefinition template instantiation

The represented information described in the template specification (see link above) says that:

"[hasParticipantType] shall participate in [hasCardinalityOfActivity] member of [hasActivityType] in the role of [hasParticipantRole]".

(a) For the first template instance (id0c7…), one can say:
"[id83f…] (subclass of SIGNAL) shall participate in **[X]** member of **[id695…]** (subclass of TRANSMITTING) in the role of **[OUTPUT]**",

which means that

a signal artifact gives an output signal.

(b) For the second template instance (id75f…), one can say:

"**[id96b…]** (subclass of PRESSURE TRANSMITTER) shall participate in [X] member of **[id695…]** (subclass of TRANSMITTING) in the role of **[PERFORMER]** ".

which means that

The pressure transmitter perform in the transmitting.

2.1.1 Problems identified

(a) As pointed out in the specification, "at instantiation of this template it is mandatory to add meta:valEffectiveDate with the dateTime that the represented information became effective". *This instance does not contain this date required*.
(b) Some template roles are missing: (4) hasDefined, (5) hasCardinalityOfActivity and (6) hasCardinalityOfParticipant.

2.2 Template ClassOfAssemblyDefinition

The template specification is shown in http://15926.org/templatespecs/CL-STRUC-03.xml

The template roles are the following (see link above):

Role No	Role Name	Role Object Type
1	hasClassOfWhole	dm:ClassOfArrangedIndividual
2	hasClassOfPart	dm:ClassOfIndividual
3	hasCardinalityOfWhole	dm:Cardinality
4	hasCardinalityOfPart	dm:Cardinality

Figure 2 shows the two ClassOfAssemblyDefinition template instances of the pressure_transmitter_rfq_1.ttl file.

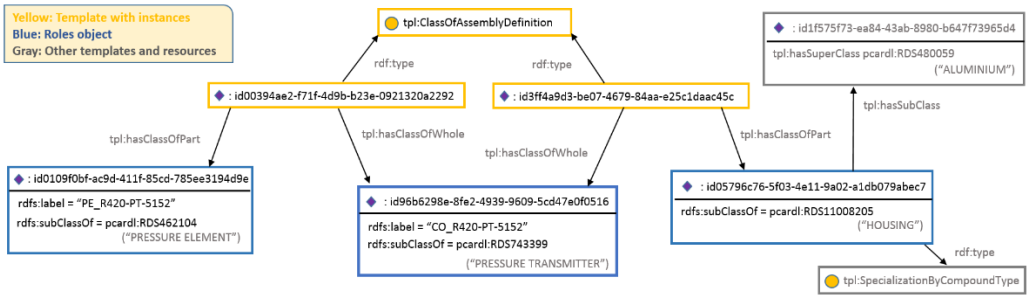

Figure 2 ClassOfAssemblyDefinition template instantiation

The represented information described in the specification (see link above) says that:

"Any member of ClassOfArrangedIndividual [hasClassOfWhole] is composed of [hasCardinalityOfWhole] member(s) of ClassOfIndividual [hasClassOfPart] in an assembly".

(a) For the first template instance (id003…), one can say:

"Any member of ClassOfArrangedIndividual **[CO_R420-PT-5152]** (subclass of PRESSURE TRANSMITTER) is composed of **[X]** member(s) of ClassOfIndividual **[PE_R420-PT-5252]** (subclass of PRESSURE ELEMENT) in an assembly",

which means that

"The PRESSURE TRANSMITTER **[CO_R420-PT-5152]** *has a the PRESSURE ELEMENT* **[PE_R420-PT-5152]** *as a part"*

(b) For the second template instance (id3ff…), one can say:

"Any member of ClassOfArrangedIndividual **[CO_R420-PT-5152]** (subclass of PRESSURE TRANSMITTER) is composed of **[X]** member(s) of ClassOfIndividual **[id057…]** in an assembly",

which means that

"The PRESSURE TRANSMITTER **[CO_R420-PT-5152]** *has a HOUSING as a part"*.

2.2.1 Problems identified

(a) As pointed out in the specification, "at instantiation of this template it is mandatory to add meta:valEffectiveDate with the dateTime that the represented information became effective". *This instance does not contain this date required*.

(b) Some template roles are missing: (3) hasCardinalityOfRole and (4) hasCardinalityOfPart

2.3 Template SpecializationByCompoundType

The template specification is shown in http://15926.org/templatespecs/CL-MATL-01.xml

The template roles are the following (see link above):

Role No	Role Name	Role Object Type
1	hasSubClass	dm:ClassOfArrangedIndividual
2	hasSuperClass	dm:ClassOfCompound

Figure 3 shows the two SpecializationByCompoundType template instances of the pressure_transmitter_rfq_1.ttl file.

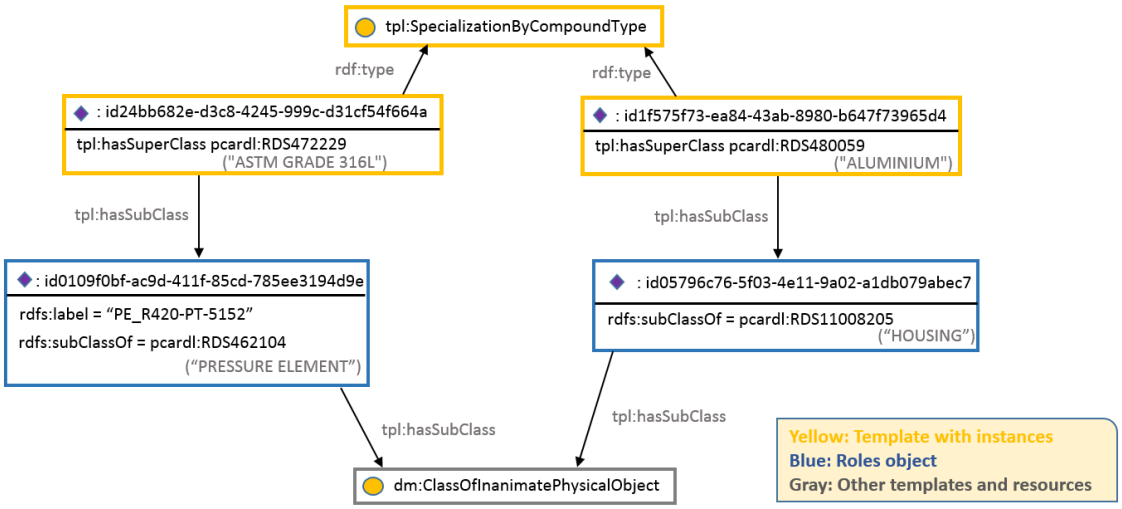

Figure 3 SpecializationByCompound template instantiation

The represented information described in the specification (see link above) says that:

"Any member of ClassOfArrangedIndividual [hasSubClass] is of the [hasSuperClass] compound type."

(a) For the first template instance (id24b…), one can say:

"Any member of ClassOfArrangedIndividual **[PE_R420-PT-5152]** (subclass of PRESSURE ELEMENT) is of the **[ASTM GRADE 316L]** compound type",

which means that

"The PRESSURE ELEMENT PE_R420-PT-5152 is made of a stainless steel material (ASTM GRADE 316L)"

(b) For the second template instance (Id1f5…), one can say:

"Any member of ClassOfArrangedIndividual **[id057…]** (subclass of HOUSING) is of the **[ALUMINIUM]** compound type",

which means that

"The HOUSING is made of ALUMINIUM".

2.3.1 Problems identified

(a) As pointed out in the specification, "at instantiation of this template it is mandatory to add meta:valEffectiveDate with the dateTime that the represented information became effective". *This instance does not contain this date required*.

2.4 Template SpecializationOfClassOfIndividual

The template specification is shown in http://15926.org/templatespecs/CL-SPECN-01.xml

The template roles are the following (see link above):

Role No	Role Name	Role Object Type
1	hasSubClass	dm:ClassOfIndividual
2	hasSuperClass	dm:Class

Figure 4 shows the four SpecializationOfClassOfIndividual template instances of the pressure_transmitter_rfq_1.ttl file.

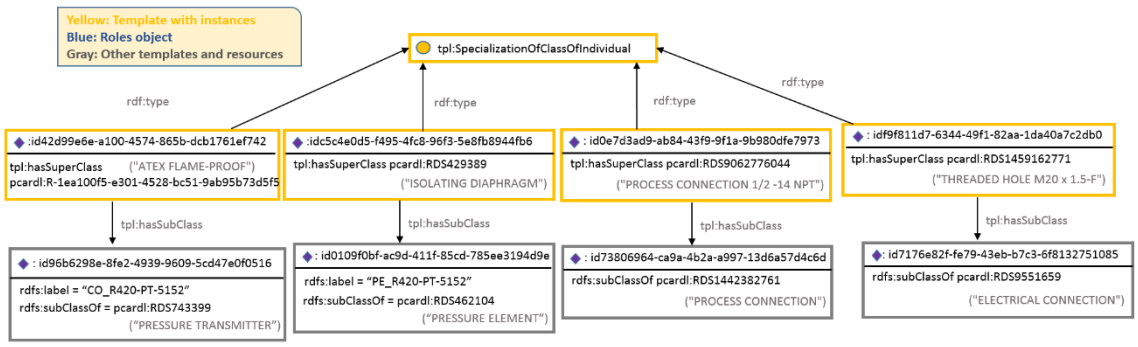

Figure 4 SpecializationOfClassOfIndividual template instantiation

The represented information described in the specification (see link above) says that:

"Any member of [hasSubClass] is also a member of [hasSuperClass]."

(a) For the first instance of the template (id42d…), one can say:

"Any member of **[CO_R420-PT-5152]** (subclass of PRESSURE TRANSMITTER) is also a member of the **[ATEX FLAME-PROOF]**",

which means that

"The PRESSURE TRANSMITTER CO_420-PT-5152 is compliant to the ATEX FLAME-PROOF certification".

(b) For the second instance of the template (idc5c…), one can say:

"Any member of **[PE_R420-PT-5152]** (subclass of PRESSURE ELEMENT) is also a member of the **[ISOLATING DIAPHRAGM]**",

which means that

"The PRESSURE ELEMENT has an isolating diaphragm".

(c) For the third instance of the template (id0e7…), one can say:

"Any member of **[id738…]** (subclass of PROCESS CONNECTION) is also a member of the **[PROCESS CONNECTION ½ - 14 NPT**]",

which means that

"The process connection is of the ½ - 14 NPT type (1/2 inch diameter/ 14 threads per inch)"

(d) For the fourth instance of the template (idf9f…), one can say:

"Any member of **[id717…]** (subclass of ELECTRICAL CONNECTION) is also a member of the **[THREADED HOLE M20 X 1.5 F**]",

which means that

The electrical connection is of the THREADED HOLE M20 x 1.5 F type (basic major diameter 20mm, 1.5 mm per thread, female)

2.4.1 Problems identified

(a) As pointed out in the specification, "at instantiation of this template it is mandatory to add meta:valEffectiveDate with the dateTime that the represented information became effective". *This instance does not contain this date required*.

2.5 Template ClassOfContainmentDefinition

The template specification is shown in http://15926.org/templatespecs/CL-LOCTN-01.xml

The template roles are the following (see link above):

Role No	Role Name	Role Object Type
1	hasClassOfContainer	dm:ClassOfIndividual
2	hasClassOfContained	dm:ClassOfIndividual
3	hasCardinalityOfContainer	dm:Cardinality
4	hasCardinalityOfContained	dm:Cardinality

Figure 5 shows the ClassOfContainmentDefinition template instance of the pressure_transmitter_rfq_1.ttl file.

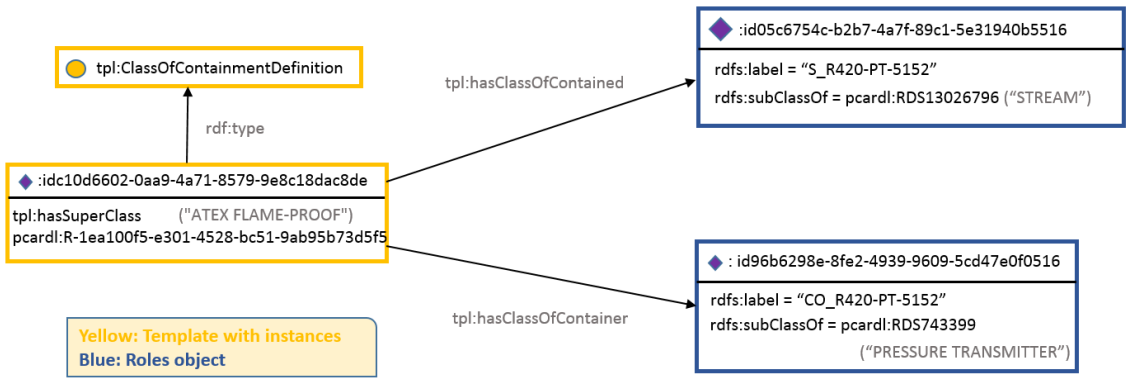

Figure 5 ClassOfContainmentDefinition template instantiation

The represented information described in the specification (see link above) says that:

"Any member of [hasClassOfContained] [may | shall] be contained in any member of [hasClassOfContainer]."

For the instance of the template (idc10…), one can say:

> "Any member of **[S_R420-PT-5152]** (subclass of STREAM) may be contained in any member of **[CO_R420-PT-5152]** (subclass of PRESSURE TRANSMITTER)",

which means that

> *"The PRESSURE TRANSMITTER CO_R420-PT-5152 for STREAMS is compliant to the ATEX FLAME-PROOF certification".*

2.5.1 Problems identified

(a) As pointed out in the specification, "at instantiation of this template it is mandatory to add meta:valEffectiveDate with the dateTime that the represented information became effective". *This instance does not contain this date required*.

(b) Some template roles are missing: (3) hasCardinalityOfContainer and (4) hasCardinalityOfContained

2.6 Template ClassOfFeatureWholePartDefinition

The template specification is shown in http://15926.org/templatespecs/CL-STRUC-04.xml?cachebuster=0.32036900%201440772479

The template roles are the following (see link above):

Role No	Role Name	Role Object Type
1	hasClassOfWhole	dm:ClassOfArrangedIndividual
2	hasClassOfPart	dm:ClassOfFeature
3	hasCardinalityOfWhole	dm:Cardinality
4	hasCardinalityOfPart	dm:Cardinality

Figure 6 shows the ClassOfFeatureWholePartDefinition template instance of the pressure_transmitter_rfq_1.ttl file.

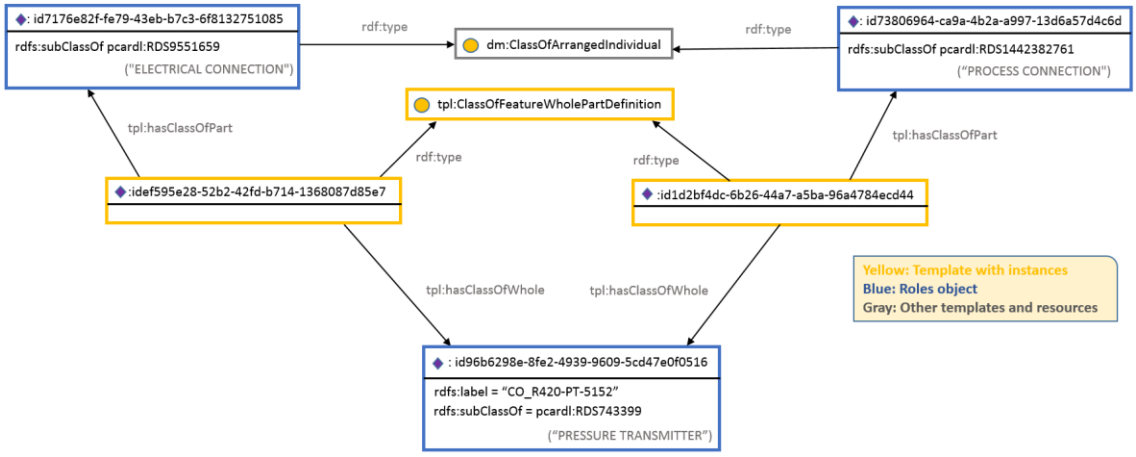

Figure 6 ClassOfFeatureWholePartDefinition template instantiation

The represented information described in the specification (see link above) says that:

"Any member of ClassOfArrangedIndividual [hasClassOfWhole] has [hasCardinalityOfWhole] member(s) of ClassOfIndividual [hasClassOfPart] as a Feature."

(a) For the first instance of the template (idef5…), one can say:

"Any member of ClassOfArrangedIndividual **[CO_R420-PT-5152]** (subclass of PRESSURE TRANSMITTER) has **[X]** member(s) of ClassOfIndividual **[id717…]** (subclass of PROCESS CONNECTION) as a Feature",

which means that

"The pressure transmitter has an electrical connection".

(b) For the second instance of the template (id1d2…), one can say:

"Any member of ClassOfArrangedIndividual **[CO_R420-PT-5152]** (subclass of PRESSURE TRANSMITTER) has **[X]** member(s) of ClassOfIndividual **[id1d2…]** (subclass of ELECTRICAL CONNECTION) as a Feature",

which means that

"The pressure transmitter has a process connection".

2.6.1 Problems identified

(a) As pointed out in the specification, "at instantiation of this template it is mandatory to add meta:valEffectiveDate with the dateTime that the represented information became effective". *This instance does not contain this date required*.
(b) Some template roles are missing: (3) hasCardinalityOfWhole and (4) hasCardinalityOfPart

2.7 Template ClassificationOfIndividual

The template specification is shown in http://15926.org/templatespecs/IN-CLSIF-01.xml

Note: This template is not present on the EDRC Use Case 2 Technical Documentation.

The template roles are the following (see link above):

Role No	Role Name	Role Object Type
1	hasClassifier	dm:PossibleIndividual
2	hasClassified	dm:ClassOfIndividual

Figure 7 shows the ClassificationOfIndividual template instance of the pressure_transmitter_rfq_1.ttl file.

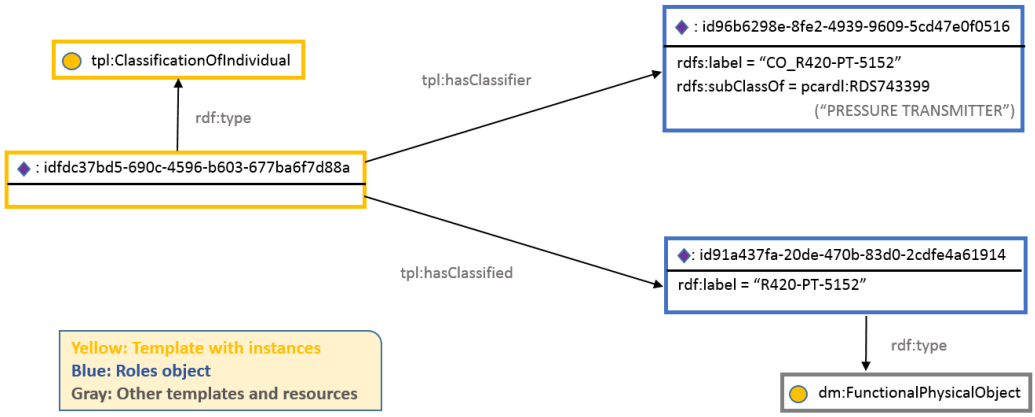

Figure 7 ClassificationOfIndividual template instantiation

The represented information described in the specification (see link above) says that:

"PossibleIndividual [hasClassified] is classified with [hasClassifier]."

For the instance of the template (idfdc…), one can say:

> "Possible Individual **[420-PT-5152]** is classified with **[CO_R420-PT-5152]** (subclass of PRESSURE TRANSMITTER)",

which means that

> *"The PRESSURE TRANSMITTER CO_R420-PT-5152 is the R420-PT-5152".*

2.7.1 Problems identified

(a) As pointed out in the specification, "at instantiation of this template it is mandatory to add meta:valEffectiveDate with the dateTime that the represented information became effective". *This instance does not contain this date required*.

2.8 Template ClassifiedDefinitionOfClassOfIndividualWithInformationRepresentation

The template specification is shown in http://www.15926.org/templatespecs/CL-DEFN-02a1.xml

Note: This template is present on the EDRC Use Case 2 Technical Documentation using the previous name, "ClassifiedDefinitionOfClassOfIndividualByCOIR".

The template roles are the following (see link above):

Role No	Role Name	Role Object Type
1	hasDefined	dm:ClassOfIndividual
2	hasDefinition	dm:ClassOfInformationRepresentation
3	hasDefinitionType	Dm:ClassOfClassOfDefinition

Figure 8 shows the ClassifiedDefinitionOfClassOfIndividualWithInformationRepresentation template instance of the pressure_transmitter_rfq_1.ttl file.

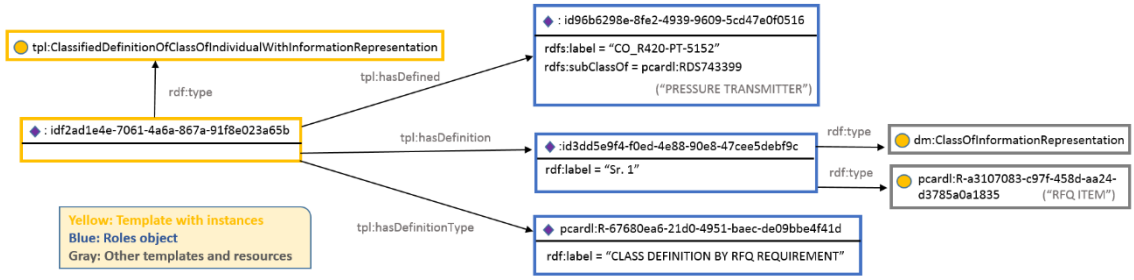

Figure 8 ClassifiedDefinitionOfClassOfIndividualWithInformationRepresentation template instantiation

The represented information described in the specification (see link above) says that:

"Members of [hasDefined] are defined as [hasDefinition] according [hasDefinitionType]."

For the instance of the template (idf2a…), one can say:

> "Members of **[CO_R420-PT-5152]** (subclass of PRESSURE TRANSMITTER) are defined as **[Sr. 1]** according **[CLASS DEFINITION BY RFQ REQUIREMENT]",**

which means that

> *"The Request For Quotation Sr. 1 and the requirements are related to the pressure transmitter CO_R420-PT-5152".*

2.8.1 Problems identified

(b) As pointed out in the specification, "at instantiation of this template it is mandatory to add meta:valEffectiveDate with the dateTime that the represented information became effective". *This instance does not contain this date required*.

3. Reply to the RFQ information

The reply to the Request for Quotation information for one pressure transmitter file (*pressure_transmitter_rfq_1_reply.ttl*) **comprises all the resources presented in the request file** (*pressure_transmitter_rfq_1.ttl*) **together with other five resources that represents the quotation**. The templates and its instances in bold are presented in next sections.

Resource	rdf:type	**Section**
pressure_transmitter_rfq_1_reply: id09596342-9f7b-41b2-9609-ff5a88ded337	dm:ClassOfArrangedIndividual, dm:ClassOfInformationRepresentation	
pressure_transmitter_rfq_1_reply:id2d28890e-6acc-4e7f-a83f-a5656d145a76	pcardl:R-bd9e51e1-7182-421d-887e-e5cb37e34653 ("QUOTATION")	
pressure_transmitter_rfq_1_reply:id3161308c-abbc-49c9-aeba-be0cce92e7e1	tpl:ProductClassFulfilsClassOfFunctionPlace	3.1
pressure_transmitter_rfq_1_reply:id3e56ba39-663b-47e2-9ac4-00849a35c53b	tpl:ClassOfIndividualHasMonetaryValue	3.2
pressure_transmitter_rfq_1_reply:id4ec28a4d-aab7-4f5b-936b-8820d731830e	tpl:ClassifiedDefinitionOfClassOfIndividual WithInformationRepresentation	3.3

3.1 Template ProductClassFulfilsClassOfFunctionPlace

The template specification is shown in http://15926.org/templatespecs/CL-FUNC-08.xml?cachebuster=0.82030400%201441117215

The template roles are the following (see link above):

Role No	Role Name	Role Object Type
1	hasFunctionPlaceClass	dm:ClassOfArrangedIndividual
2	hasProductClass	dm:ClassOfArrangedIndividual
3	hasClassOfFulfilled	dm:ClassOfArrangedIndividual

Figure 9 shows the ProductClassFulfilsClassOfFunctionPlace template instance of the pressure_transmitter_rfq_1_reply.ttl file.

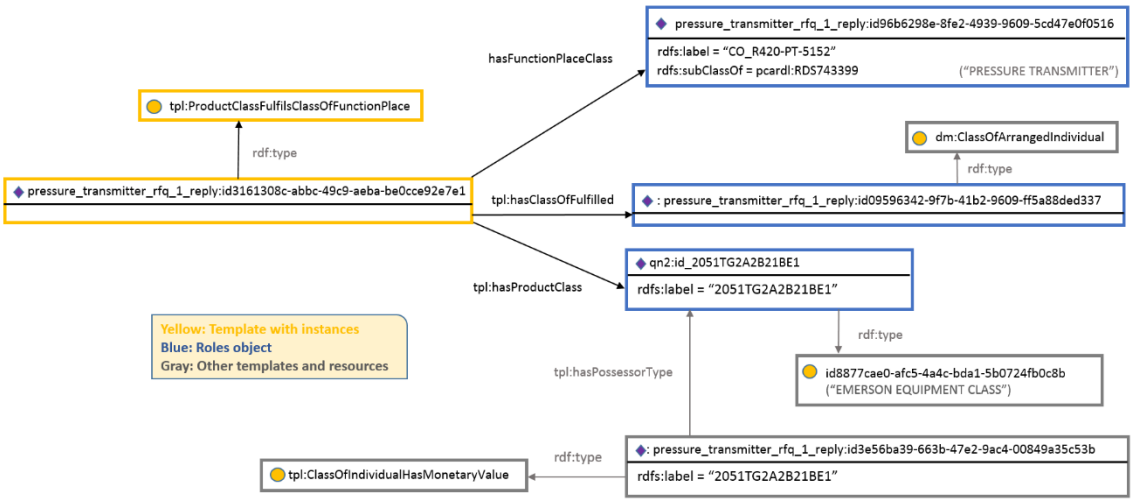

Figure 9 ProductClassFulfilsClassOfFunctionPlace template instantiation

The represented information described in the specification (see link above) says that:

"Any member of a class-of-temporal-part of Product Class [hasProductClass] fulfils the requirements of any member of a class-of-temporal-part of Process Design Item [hasFunctionPlaceClass]"

For the instance of the template (id316…), one can say:

> "Any member of a class-of-temporal-part of Product Class **[2051TG2A2B21BE1]** (type EMERSON EQUIPMENT CLASS) fulfils the requirements of any member of a class-of-temporal-part of Process Design Item **[CO_R420-PT-5152]**"

which means that

"The EMERSON EQUIPMENT CLASS 2051TG2A2B21BE1 fulfil the requirements for the CO_R420-PT-5152 PRESSURE TRANSMITTER".

3.1.1 Problems identified

(c) As pointed out in the specification, "at instantiation of this template it is mandatory to add meta:valEffectiveDate with the dateTime that the represented information became effective". *This instance does not contain this date required*.

3.2 Template ClassOfIndividualHasMonetaryValue

The template specification is shown in http://15926.org/templatespecs/CL-INDPTY-07.xml?cachebuster=0.82274400%201441117215

The template roles are the following (see link above):

Role No	Role Name	Role Object Type
1	hasPossessorType	dm:ClassOfIndividual
2	hasCostType	dm:ClassOfIndirectProperty
3	valPropertyValue	dm:ExpressReal
4	hasCurrency	dm:Scale

Figure 10 shows the ClassOfIndividualHasMonetaryValue template instance of the pressure_transmitter_rfq_1_reply.ttl file.

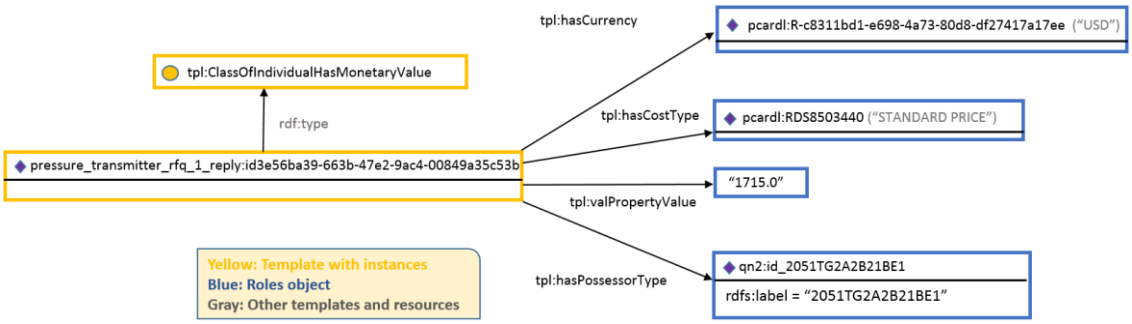

Figure 10 ClassOfIndividualHasMonetaryValue template instantiation

The represented information described in the specification (see link above) says that:

"Any member of [hasPossessorType] has a [hasIndirectPropertyType] with a value of [valPointValue] [hasScale]."

For the instance of the template (id3e5…), one can say:

> "Any member of [**2051TG2A2B21BE1**] has a [**STANDARD PRICE**] with a value of **[1715.0] [USD]**"

which means that

> *"The Quotation for the 2051TG2A2B21BE1 product has as standard price 1715 USD".*

3.2.1 Problems identified

(d) As pointed out in the specification, "at instantiation of this template it is mandatory to add meta:valEffectiveDate with the dateTime that the represented information became effective". *This instance does not contain this date required*.

3.3 Template ClassifiedDefinitionOfClassOfIndividualWithInformationRepresentation

The template specification is shown in http://www.15926.org/templatespecs/CL-DEFN-02a1.xml

The template roles are the following (see link above):

Role No	Role Name	Role Object Type
1	hasDefined	dm:ClassOfIndividual
2	hasDefinition	dm:ClassOfInformationRepresentation
3	hasDefinitionType	dm:ClassOfClassOfDefinition

3.3.1 Problems identified

(a) As pointed out in the specification, "at instantiation of this template it is mandatory to add meta:valEffectiveDate with the dateTime that the represented information became effective". *This instance does not contain this date required*.

(b) The template instance roles in the reply file are not consistent with the template specification (instead of the hasDefined, hasDefinition and hasDefinitionType, the instance id4ec… uses the roles tpl:hasDescribed, tpl:hasDescription and tpl:hasDescriptionType).

4. Proposal

This Section describes a proposal for solving the inconsistencies found in the *pressure_transmitter_rfq_1.ttl* file (only for that file) described in the previous Sections. The new instances are shown as follows (it is presented at the file *pressure_transmitter_rfq_1_tec.ttl)*. The orange colored text represents suggestions to fill the gaps found or to correct the inconsistencies and the texts after the symbol "//" are comments.

```
:id00394ae2-f71f-4d9b-b23e-0921320a2292
  rdf:type tpl:ClassOfAssemblyDefinition ;
  tpl:hasClassOfPart :id0109f0bf-ac9d-411f-85cd-785ee3194d9e ;
  tpl:hasClassOfWhole :id96b6298e-8fe2-4939-9609-5cd47e0f0516 ;
  meta:valEffectiveDate "2015-09-08T11:00:00+00:00";
  tpl:hasCardinalityOfRole :CardinalityX;[2]
  tpl:hasCardinalityOfPart : CardinalityX;
.
:id0109f0bf-ac9d-411f-85cd-785ee3194d9e
  rdf:type dm:ClassOfInanimatePhysicalObject ;
  rdfs:label "PE_R420-PT-5152" ;
  rdfs:subClassOf pcardl:RDS462104 ;
.
:id05796c76-5f03-4e11-9a02-a1db079abec7
  rdf:type dm:ClassOfInanimatePhysicalObject ;
  rdfs:subClassOf pcardl:RDS11008205 ;
.
:id05c6754c-b2b7-4a7f-89c1-5e31940b5516
  rdf:type dm:ClassOfInanimatePhysicalObject ;
  rdfs:label "S_R420-PT-5152" ;
  rdfs:subClassOf pcardl:RDS13026796 ;
.
:idX // auxiliary element to be created
  rdf:type dm:ClassOfParticipation;

:id0c73c960-9164-46f3-959a-70a6fd5a31b2
  rdf:type tpl:ClassOfParticipationDefinition ;
  tpl:hasActivityType :id69516a23-2029-4f05-a714-3d269cc78de5 ;
  tpl:hasParticipantRole pcardl:RDS13652847 ;
  tpl:hasParticipantType :id83f1614d-649b-4876-ae1e-34721972e9bc ;
  meta:valEffectiveDate "2015-09-08T11:00:00+00:00";
  tpl:hasDefined :idX;
  tpl:hasCardinalityOfActivity : CardinalityX; // (to be reviewed)
  tpl:hasCardinalityOfParticipant : CardinalityX; // (to be reviewed)
.
:id0e7d3ad9-ab84-43f9-9f1a-9b980dfe7973
  rdf:type tpl:SpecializationOfClassOfIndividual ;
  tpl:hasSubClass :id73806964-ca9a-4b2a-a997-13d6a57d4c6d ;
  tpl:hasSuperClass pcardl:RDS9062776044 ;
.
:id1395ad4b-81d5-4f46-a90b-7593f98edd32
  rdf:type tpl:ClassifiedIdentificationOfIndividual ;
  tpl:hasIdentificationType pcardl:R-0d8da6d3-bf11-4e17-bdeb-fcfcbeb32490 ;
  tpl:hasIdentified :id91a437fa-20de-470b-83d0-2cdfe4a61914 ;
  tpl:valIdentifier "R420-PT-5152" ;
  meta:valEffectiveDate "2015-09-08T11:00:00+00:00";
.
:id1d2bf4dc-6b26-44a7-a5ba-96a4784ecd44
  rdf:type tpl:ClassOfFeatureWholePartDefinition ;
  tpl:hasClassOfPart :id73806964-ca9a-4b2a-a997-13d6a57d4c6d ;
  tpl:hasClassOfWhole :id96b6298e-8fe2-4939-9609-5cd47e0f0516 ;
  meta:valEffectiveDate "2015-09-08T11:00:00+00:00";
.
:id1f575f73-ea84-43ab-8980-b647f73965d4
  rdf:type tpl:SpecializationByCompoundType ;
  tpl:hasSubClass :id05796c76-5f03-4e11-9a02-a1db079abec7 ;
  tpl:hasSuperClass pcardl:RDS480059 ;
.
```

[2] Cardinality to be defined by PCA

```
:id20a39ca3-eb99-44be-aacf-8dae3b3f99cb
  rdf:type pcardl:R-4d2153f8-2b65-4bee-9efb-a2fcac12f284 ;
  rdf:type dm:ClassOfInformationRepresentation ;
  rdfs:label "RFQ-001" ;
.
:id24bb682e-d3c8-4245-999c-d31cf54f664a
  rdf:type tpl:SpecializationByCompoundType ;
  tpl:hasSubClass :id0109f0bf-ac9d-411f-85cd-785ee3194d9e ;
  tpl:hasSuperClass pcardl:RDS472229 ;
.
:id3dd5e9f4-f0ed-4e88-90e8-47cee5debf9c
  rdf:type pcardl:R-a3107083-c97f-458d-aa24-d3785a0a1835 ;
  rdf:type dm:ClassOfInformationRepresentation ;
  rdfs:label "1" ;
.
:id3ff4a9d3-be07-4679-84aa-e25c1daac45c
  rdf:type tpl:ClassOfAssemblyDefinition ;
  tpl:hasClassOfPart :id05796c76-5f03-4e11-9a02-a1db079abec7 ;
  tpl:hasClassOfWhole :id96b6298e-8fe2-4939-9609-5cd47e0f0516 ;
.
:id42d99e6e-a100-4574-865b-dcb1761ef742
  rdf:type tpl:SpecializationOfClassOfIndividual ;
  tpl:hasSubClass :id96b6298e-8fe2-4939-9609-5cd47e0f0516 ;
  tpl:hasSuperClass pcardl:R-1ea100f5-e301-4528-bc51-9ab95b73d5f5 ;
.
:id5a5afdec-c690-4a37-a869-6b33d15dd92a
  rdf:type tpl:ClassOfIndividualHasIndirectPropertyWithValue ;
  tpl:hasIndirectPropertyType pcardl:RDS369629 ;
  tpl:hasPossessorType :id05c6754c-b2b7-4a7f-89c1-5e31940b5516 ;
  tpl:hasScale pcardl:RDS1348874 ;
  tpl:valPropertyValue "19.2" ;
.
:id69516a23-2029-4f05-a714-3d269cc78de5
  rdf:type dm:ClassOfActivity ;
  rdfs:subClassOf pcardl:RDS9652247 ;
.
:id7176e82f-fe79-43eb-b7c3-6f8132751085
  rdf:type dm:ClassOfArrangedIndividual ;
  rdfs:subClassOf pcardl:RDS9551659 ;
.
:id73806964-ca9a-4b2a-a997-13d6a57d4c6d
  rdf:type dm:ClassOfArrangedIndividual ;
  rdfs:subClassOf pcardl:RDS1442382761 ;
.
:id75fe4685-a1f7-4e88-b4c5-9b0a9fa707fa
  rdf:type tpl:ClassOfParticipationDefinition ;
  tpl:hasActivityType :id69516a23-2029-4f05-a714-3d269cc78de5 ;
  tpl:hasParticipantRole pcardl:R-d2f7bbdf-0314-417b-b50b-b4fa4b6cd897 ;
  tpl:hasParticipantType :id96b6298e-8fe2-4939-9609-5cd47e0f0516 ;
.
:id7cbfe727-ba44-49fe-83d2-50c5edb17e5d
  rdf:type tpl:ClassOfIndividualHasIndirectPropertyWithBoundingValues ;
  tpl:hasIndirectPropertyType pcardl:R-172326ab-22d4-4ba0-be6e-f2f4890e8185 ;
  tpl:hasPossessorType :id96b6298e-8fe2-4939-9609-5cd47e0f0516 ;
  tpl:hasScale pcardl:RDS1348874 ;
  tpl:valLowerBound "0" ;
  tpl:valUpperBound "30.0" ;
.
:id83f1614d-649b-4876-ae1e-34721972e9bc
  rdf:type dm:ClassOfArrangedIndividual ;
  rdfs:subClassOf pcardl:RDS337196911 ;
.
:id84217d48-1196-439b-8dfe-cfcd7376b08c
  rdf:type tpl:SpecializationOfClassOfIndividual ;
  tpl:hasSubClass :id83f1614d-649b-4876-ae1e-34721972e9bc ;
  tpl:hasSuperClass pcardl:R-9589eb0d-8276-40b8-9ada-8d79cf1c7101 ;
.
:id91a437fa-20de-470b-83d0-2cdfe4a61914
  rdf:type dm:FunctionalPhysicalObject ;
  rdfs:label "R420-PT-5152" ;
.
:id96b6298e-8fe2-4939-9609-5cd47e0f0516
  rdf:type pcardl:R-c898dddf-932e-4216-bf99-0f40df3847f4 ;
  rdf:type dm:ClassOfInanimatePhysicalObject ;
  rdfs:label "CO_R420-PT-5152" ;
  rdfs:subClassOf pcardl:~~RDS354194~~ RDS743399 ; // the right is PRESSURE TRANSMITTER, not
PRESSURE
```

```
.
:idc10d6602-0aa9-4a71-8579-9e8c18dac8de
  rdf:type tpl:ClassOfContainmentDefinition ;
  tpl:hasClassOfContained :id05c6754c-b2b7-4a7f-89c1-5e31940b5516 ;
  tpl:hasClassOfContainer :id96b6298e-8fe2-4939-9609-5cd47e0f0516 ;
  tpl:hasCardinalityOfContainer :RDSNEW004; // (to be reviewed)
  tpl:hasCardinalityOfContained :RDSNEW004; // (to be reviewed)
.
:idc1b54729-7deb-4764-a16a-0a9d29b1582e
  rdf:type tpl:CompositionOfClassOfInformationRepresentation ;
  tpl:hasPart :id3dd5e9f4-f0ed-4e88-90e8-47cee5debf9c ;
  tpl:hasWhole :id20a39ca3-eb99-44be-aacf-8dae3b3f99cb ;
.
:idc5c4e0d5-f495-4fc8-96f3-5e8fb8944fb6
  rdf:type tpl:SpecializationOfClassOfIndividual ;
  tpl:hasSubClass :id0109f0bf-ac9d-411f-85cd-785ee3194d9e ;
  tpl:hasSuperClass pcardl:RDS429389 ;
.
:idef595e28-52b2-42fd-b714-1368087d85e7
  rdf:type tpl:ClassOfFeatureWholePartDefinition ;
  tpl:hasClassOfPart :id7176e82f-fe79-43eb-b7c3-6f8132751085 ;
  tpl:hasClassOfWhole :id96b6298e-8fe2-4939-9609-5cd47e0f0516 ;
  tpl:hasCardinalityOfWhole : CardinalityX;
  tpl:hasCardinalityOfPart : CardinalityX;
.
:idf2ad1e4e-7061-4a6a-867a-91f8e023a65b
  rdf:type tpl:ClassifiedDefinitionOfClassOfIndividualByCOIR ;
  tpl:hasDefined :id96b6298e-8fe2-4939-9609-5cd47e0f0516 ;
  tpl:hasDefinition :id3dd5e9f4-f0ed-4e88-90e8-47cee5debf9c ;
  tpl:hasDefinitionType pcardl:R-67680ea6-21d0-4951-baec-de09bbe4f41d ;
.
:idf84912f2-0994-4ac5-b0b1-dd64376dd345
  rdf:type tpl:ClassOfIndividualHasIndirectPropertyWithValue ;
  tpl:hasIndirectPropertyType pcardl:RDS369674 ;
  tpl:hasPossessorType :id05c6754c-b2b7-4a7f-89c1-5e31940b5516 ;
  tpl:hasScale pcardl:RDS1322684 ;
  tpl:valPropertyValue "95.0" ;
.
:idf9f811d7-6344-49f1-82aa-1da40a7c2db0
  rdf:type tpl:SpecializationOfClassOfIndividual ;
  tpl:hasSubClass :id7176e82f-fe79-43eb-b7c3-6f8132751085 ;
  tpl:hasSuperClass pcardl:RDS1459162771 ;
.
:idfdc37bd5-690c-4596-b603-677ba6f7d88a
  rdf:type tpl:ClassificationOfIndividual ;
  tpl:hasClassified :id91a437fa-20de-470b-83d0-2cdfe4a61914 ;
  tpl:hasClassifier :id96b6298e-8fe2-4939-9609-5cd47e0f0516 ;
.
<http://iso15926.fiatech.org/edrc_usecase_2/pressure_transmitter_rfq_1>
  rdf:type owl:Ontology ;
  owl:imports tpl: ;
  owl:versionInfo "Created with TopBraid Composer"^^xsd:string ;
.
```

The files presented at the directory "edrc_usecase_2 - changed by TecGraf," allows to test the EDRC UC2 with answering real SPARQL queries. The reader can see it at the document UC2_SPARQL_Examples.pdf

5. Data Specification

This section brings a First Order Logic representation of the Object Declarations and the Templates Patterns[3] used to construct the EDRC User Case 2[4]. The main goal of this section is to show the connection between the classes, templates and patterns to model the information or data.

5.1 Object Declarations

At the FOL formula below, the predicates are used to define properties and some predicates are not in Part 7 of ISO15926. These predicates are:

- Identification(x) - it means that x is an identifier;
- RequestforQuotation(x) - it means that x is a Request for Quotation;
- TaggedItemObject(x) - it means that x is a Tagged Item;
- EquipmentType(x) - it means that x is an Equipment Type;
- RequiredItemClass(x) - it means that x is a Required Item;
- PressureElement(x) - it means that x is a Pressure Element;
- Stream(x) - it means that x is a Stream;
- Quotation(x) - it means that x is a Quotation;
- RFQItem(x) - it means that x is a Request for Quotation Item;
- ClassificationProperty(x,y) - it means that x is classified as y;
- IdentificationProperty(x,y) - it means that x has the label y;
- SpecializationProperty (x, y) - it means that x is subclass of y.

Note: In the specification of the Template Pattern, it is possible to use directly FOL predicates and proto-templates defined in ISO15926-7. However, Object declarations are designed to be implemented without templates.

[3] In the mapping of the information to be accessed or data to be exchanged, to ISO 15926 reference data Classes and Templates, it was noticed certain sets of repeating patterns. The repetitive nature of the patterns allow the work to accelerate. When new requirements have been identified with similar semantics already mapped to specific patterns, these same patterns have simply been applied to the new requirements[5]

[4] see specification downloading the file at http://techinvestlab.ru/EDRCDemo

Request for Quotation

RequestforQuotationObjectDeclaration(y,z,k) ->
ClassOfInformationRepresentation(y)^
RequestforQuotation(z)^
Identification(k) ^
ExpressString(k)^
ClassificationProperty(z,y) ^
IdentificationProperty(y,k) .

Instance example: RequestforQuotationObjectDeclaration (InformationRepresentationY, RequestForQuotationX, "RFQ_0001").

The **RequestForQuotationX** is classified as **InformationRepresentationY** and has the identifier **RFQ_0001.**

Tagged Item

TaggedItemObjectDeclaration (y,z,k) ->
FunctionalPhysicalObject(y)^
TaggedItemObject(z)^
Identification(k) ^
ExpressString(k)^
ClassificationProperty(z,y) ^
IdentificationProperty(y,k) .

Instance example: TaggedItemObjectDeclaration (FunctionalPhysicalObjectY, TaggedItemObjectZ, "R420-PT-6501").

The **TaggedItemObjectZ**, is classified as **FunctionalPhysicalObjectY** and has the identifier **R420-PT-6501.**

Required Class

RequiredClassObjectDeclaration (x, y,z,k) ->
ClassOfInanimatePhysicalObject(x) ^
Identification(y)^
ExpressString(y)^
EquipmentType(z)^
RequiredItemClass(k) ^
ClassificationProperty(k,x) ^
IdentificationProperty (x,y) ^
SpecializationProperty (x,z) .

Instance example: RequiredClassObjectDeclaration (InanimatePhysicalObjectX, "CO_R420-PT-6501", EquipmentTypeX, RequiredItemClassZ).

The **InanimatePhysicalObjectX** is classified as **RequiredItemClassZ**, is subclass of **EquipmentTypeX** and has the identifier **CO_R420-PT-6501.**

Note: the **EquipmentTypeX** is a Data set element (RDL entity), it can be PRESSURE TRANSMITTER http://posccaesar.org/rdl/RDS743399

Pressure Element Class

PressureElementClassObjectDeclaration(x, y,z) ->
ClassOfInanimatePhysicalObject(x)^
Identification(y) ^
ExpressString(y)^
PressureElement(z)^
IdentificationProperty (x,y) ^
SpecializationProperty (x,z) .

Instance example: PressureElementClassObjectDeclaration (InanimatePhysicalObjectX," PE_R420-PT-6501", PressureElementZ).

The **InanimatePhysicalObjectX** is subclass of **PressureElementZ** and has the identifier **PE_R420-PT-6501.**

Stream Class

StreamClassObjectDeclaration(x,y,z) ->
ClassOfInanimatePhysicalObject(x)^
Identification (y)^
ExpressString(y)^
Stream(z)^
IdentificationProperty(x,y) ^
SpecializationProperty (x,z) .

Instance example: StreamClassObjectDeclaration (InanimatePhysicalObjectX,"S_R420-PT-6501", StreamZ).

The **InanimatePhysicalObjectX** is subclass of **StreamZ** and has the identifier **S_R420-PT-6501**

Reply to the Request for Quotation

```
ReplytotheRequestforQuotationObjectDeclaration(y,z,k) ->
        ClassOfInformationRepresentation(y)^
        Quotation(z)^
        Identification(k)^
        ExpressString(k)^
        ClassificationProperty(z,y) ^
        IdentificationProperty (y,k)  .
```

Instance example: Reply to the Request forQuotationDeclaration (InformationY,QuotationZ, "RFQ_0001_Reply").

The **InformationY** is classified as **QuotationZ** and has the identifier **RFQ_0001_Reply.**

RFQ Item

```
RFQItemObjectDeclaration(y,k,z) ->
    ClassOfInanimatePhysicalObject(y)^
    Identification(k)^
     ExpressString(k)^
     RFQItem(z)^
    IdentificationProperty (y,k) ^
     ClassificationProperty (y,z) .
```

Instance example RFQItemObjectDeclaration (InanimatePhysicalObjectY,"Sr.1", RFQItemZ).

The **InanimatePhyscalObjectY** has a **RFQItemZ** and has the identifier **Sr.1.**

5.2 Template Pattern

The formulas bellow represent requirements for the request for quote about the pressure transmitter (request and reply) and its specification.

```
Pressure_Transmitter_RFQ (X1, X2, X3, X4, X5, X6,X7, X8, C1, X9,X10, C2, X11, X12, C3,
X13, X14, X15, X16, X17, X18, X19, X20, X21, X22, X23, X24, X25, X26, X27, X28, X29,
X30)

    ->
                TagNumber(X1, X2, X3, X4) ^
                OperatingPressure(X4, X5, X6, X7, X8, C1, X9) ^
                OperatingTemperature(X4, X5, X6, X7, X10, C2, X11) ^
                CalibrationRange (X4, X12, C3, X9) ^
                ProductCertification (X4, X13) ^
                Output (X14, X15, X4, X16, X17, X18) ^
                ElementType(X4, X19, X20) ^
                ElementMaterial (X4, X19, X21) ^
                HousingMaterial (X4, X22, X23) ^
                ElectricalConnectionType(X4, X24, X25) ^
                ProcessConnectionType(X26, X4, X27) ^
                DefinitionOfClassByRQFDocument(X28, X29, X4, X30).

Pressure_Transmitter_RFQ_Reply (X1, X2, X3, X4, X5, X6, X7, x8, C1, X9, X10, C2, X11,
X12, C3, X13, X14, X15, X16, X17, X18, X20, X21, X22, X23, X24, X25, PC, PCN, X28, X29,
X30, R1, R2, R3, R4, C4, R5)

     ->
                TagNumber(X1, X2, X3, X4) ^
                OperatingPressure(X4, X5, X6, X7, x8, C1, X9) ^
                OperatingTemperature(X4, X5, X6, X7, X10, C2, X11) ^
                CalibrationRange (X4, X12, C3, X9) ^
                ProductCertification (X4, X13) ^
                Output (X14, X15, X4, X16, X17, X18) ^
                ElementType(X4, X19, X20) ^
                ElementMaterial (X4, X19, X21) ^
                HousingMaterial (X4, X22, X23) ^
                ElectricalConnectionType(X4, X24, X25) ^
                ProcessConnectionType(X26, X4, X27) ^
                DefinitionOfClassByRQFDocument(X28, X29, X4, X30) ^
                ModelNumber (X4, X28, R1, R2, R3, R4, C4, R5 ) .


TagNumber(X1, X2, X3, X4) ->
       ClassifiedIdentificationOfIndividual(X1, X2, X3) ^
       ClassificationOfIndiviual (X1, X4).

OperatingPressure(X4, X5, X6, X7, x8, C1, X9) ->
       ClassOfContainmentDefinition(X4, X5, X6, X7) ^
       ClassOfIndividualHasIndirectPropertyWithValue(X5, x8, C1, X9).

OperatingTemperature(X4, X5, X6, X7, X10, C2, X11) - >
       ClassOfContainmentDefinition(X4, X5, X6, X7) ^
       ClassOfIndividualHasIndirectPropertyWithValue(X5, X10, C2, X11).
CalibrationRange (X4, X12, C3, X9) - >
       ClassOfIndividualHasIndirectPropertyWithMaximumValue (X4, X12, C3, X9).

ProductCertification (X4, X13) - >
       SpecializationOfClassOfIndividual (X4, X13).

Output (X14, X15, X4, X16, X17, X18) ->
       SpecializatioNOPfClassOfIndividual(X14, X15) ^
       ClassOfParticipationDefinition (X4, X16, X17) ^
       ClassOfParticipationDefinition (X14, X16, X18).

ElementType(X4, X19, X20) ->
       ClassOfAssemblyDefinition(X4, X19) ^
       SpecializationOfClassOfIndividual(X19, X20).

ElementMaterial (X4, X19, X21) ->
       ClassOfAssemblyDefinition(X4, X19) ^
       SpecializationByCoumpoundType(X19, X21).

HousingMaterial (X4, X22, X23) ->
```

```
        ClassOfAssemblyDefinition(X4, X22) ^
        SpecializationByCoumpoundType(X22, X23).

ElectricalConnectionType(X4, X24, X25) ->
        ClassOfFeatureWholePartDefinition (X24, X4) ^
        SpecializationOfClassOfIndividual(X25, X24).

ProcessConnectionType(X26, X4, X27) ->
        ClassOfFeatureWholePartDefinition (X26, X4) ^
        SpecializationOfClassOfIndividual(X27, X26).

DefinitionOfClassByRQFDocument(X28, X29, X4, X30) ->
        CompositionOfClassOfInformationRepresentation(X28, X29) ^
        ClassifiedIdentificationOfIndividualWithInformationRepresentation (X4, X28, X30).

ModelNumber (X4, X28, R1, R2, R3, R1, R4, C4, R5) ->

        ClassifiedIdentificationOfIndividualWithInformationRepresentation(X4, X28, R1) ^
        ProductClassFulfilsClassOfFunctionPlace(X4, R3, R2) ^
        IndividualHasMonetaryValue (R3, R4, C4, R5).
```

The formulas bellow represents the instantiation of the formula shown above (request and reply). The instance is essential to understand how the objects are build based on the patterns and using the templates.

Note2: The labels described as follows are taken from (i) the own object label or (ii) the `rdfs:subClassOf` property or (iii) the `tpl:hasSuperClass` property.

Note3: The instantiation process must be applied to all patterns and template. Here is showed the instantiation for just the more external patterns.

Notation of some constants:

```
id91a... = CompanyNamespace+Project ID + TagNumber or CompanyNamespace + UUID
id0959... = ClassOfArrangedIndividual
CO_R420-PT-5152 = Company's PRESSURE TRANSMITTER
R420-PT-5152 = PRESSURE TRANSMITTER tag
S_R420-PT-5152 = PRESSURE TRANSMITTER STREAM
PE_R420-PT-5152 = PRESSURE ELEMENT
cardinality1 = cardinality to be defined by PCA
cardinality2 = cardinality to be defined by PCA
```

Formulas:

```
Pressure_Transmitter_RFQ ("id91a...", "R420-PT-5152", "TAG ASSIGNMENT CLASS", "CO_R420-
PT-5152", "S_R420-PT-5152", "cardinality1","cardinality2", "NORMAL OPERATING PRESSURE",
19.2, "BAR GAUGE","NORMAL OPERATING TEMPERATURE", 95.0, "DEGREE CELSIUS", "CALIBRATION
RANGE", 30, "ATEX FLAME PROOF", "SIGNAL","4_20mA, HART","TRANSMITTING", "PERFORMER",
"OUTPUT", "PE_R420-PT-5152","ISOLATING DIAPHGRAM","ASTM GRADE 316L", "HOUSING",
"ALLUMINIUN", "ELECTRICAL CONNECTION", "THREADED HOLE M20 X 1.5F", "PROCESS CONNECTION",
"PROCESS CONNECTION 1/2 -14 NPT","Sr.1","RFQ-001", "CLASS DEFINITION BY X29
REQUIREMENT")
 ->

TagNumber("id91a...","R420-PT-5152","TAG ASSIGNMENT CLASS", "CO_R420-PT-5152") ^

OperatingPressure("CO_R420-PT-5152","S_R420-PT-5152","cardinality1","cardinality2",
"NORMAL OPERATING PRESSURE", 19.2, "BAR GAUGE") ^

OperatingTemperature("CO_R420-PT-5152","S_R420-PT-5152","cardinality1","cardinality2",
"NORMAL OPERATING TEMPERATURE", 95.0, "DEGREE CELSIUS") ^

CalibrationRange ("CO_R420-PT-5152","CALIBRATION RANGE", 30,"BAR GAUGE") ^

ProductCertification ("CO_R420-PT-5152", "ATEX FLAME PROOF") ^

Output ("SIGNAL","4_20mA, HART","CO_R420-PT-5152","TRANSMITTING", "PERFORMER", "OUTPUT")
^

ElementType ("CO_R420-PT-5152", "PE_R420-PT-5152", "ISOLATING DIAPHGRAM") ^
```

```
ElementMaterial ("CO_R420-PT-5152","PE_R420-PT-5152", "ASTM GRADE 316L") ^

HousingMaterial ("CO_R420-PT-5152","HOUSING","ALLUMINIUN") ^

ElectricalConnectionType ("CO_R420-PT-5152","ELECTRICAL CONNECTION", "THREADED HOLE M20
X 1.5F") ^

ProcessConnectionType ("PROCESS CONNECTION" ,"CO_R420-PT-5152", "PROCESS CONNECTION 1/2
-14 NPT") ^

DefinitionOfClassByRQFDocument ("Sr.1","RFQ-001","CO_R420-PT-5152","CLASS DEFINITION BY
RQF REQUIREMENT") .

Pressure_Transmitter_RFQ_Reply  ("id91a...","R420-PT-5152",  "TAG  ASSIGNMENT  CLASS",
"CO_R420-PT-5152",  "S_R420-PT-5152",  "cardinality1","cardinality2",  "NORMAL  OPERATING
PRESSURE", 19.2, "BAR GAUGE","NORMAL OPERATING TEMPERATURE", 95.0, "DEGREE CELSIUS",
"CALIBRATION  RANGE",  30,  "ATEX  FLAME  PROOF",  "SIGNAL","4_20mA,HART","TRANSMITTING",
"PERFORMER",  "OUTPUT",  "PE_R420-PT-5152","ISOLATING  DIAPHGRAM","ASTM  GRADE  316L",
"HOUSING","ALLUMINIUN",  "ELECTRICAL  CONNECTION",  "THREADED  HOLE  M20  X  1.5F",  "PROCESS
CONNECTION", "PROCESS CONNECTION 1/2 -14 NPT","Sr.1","RFQ-001", "CLASS DEFINITION BY RQF
REQUIREMENT", "CLASS DESCRIPTION BY QUOTATION", "id0959...", "2051TG2A2B21BE1 - EMERSON
EQUIPAMENT CLASS" , "STANDARD PRICE", 1715, "USD" )

->

TagNumber("id91a...","R420-PT-5152","TAG ASSIGNMENT CLASS", "CO_R420-PT-5152") ^

OperatingPressure("CO_R420-PT-5152","S_R420-PT-5152","cardinality1","cardinality2",
"NORMAL OPERATING PRESSURE", 19.2, "BAR GAUGE")^

OperatingTemperature("CO_R420-PT-5152","S_R420-PT-5152","cardinality1","cardinality2",
"NORMAL OPERATING TEMPERATURE", 95.0, "DEGREE CELSIUS") ^

CalibrationRange ("CO_R420-PT-5152","CALIBRATION RANGE", 30,"BAR GAUGE") ^

ProductCertification ("CO_R420-PT-5152", "ATEX FLAME PROOF") ^

Output ("SIGNAL","4_20mA, HART","CO_R420-PT-5152", "TRANSMITTING", "PERFORMER",
"OUTPUT") ^

ElementType("CO_R420-PT-5152", "PE_R420-PT-5152", "ISOLATING DIAPHGRAM") ^

ElementMaterial ("CO_R420-PT-5152","PE_R420-PT-5152", "ASTM GRADE 316L") ^

HousingMaterial ("CO_R420-PT-5152","HOUSING","ALLUMINIUN") ^

ElectricalConnectionType("CO_R420-PT-5152","ELECTRICAL CONNECTION", "THREADED HOLE M20 X
1.5F") ^

ProcessConnectionType("PROCESS CONNECTION" ,"CO_R420-PT-5152", "PROCESS CONNECTION 1/2 -
14 NPT") ^

DefinitionOfClassByRQFDocument("Sr.1","RFQ-001","CO_R420-PT-5152","CLASS DEFINITION BY
RQF REQUIREMENT") ^

ModelNumber ("CO_R420-PT-5152", "Sr.1","CLASS DESCRIPTION BY QUOTATION", id0959...,
"2051TG2A2B21BE1 - EMERSON EQUIPAMENT CLASS" , "STANDARD PRICE", 1715, "USD" ) .
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