
Subject: [railML3] Request for extension of the 'crossing' infrastructure element
Posted by [Heidrun Jost](#) on Sun, 17 May 2020 13:18:23 GMT

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Hello,

I am working on a Thales railway infrastructure project for Norway. An important topic is the mapping of the infrastructure by using railML v3.1. When modelling the railway network (on the Micro Layer), we have a problem with the crossing element of railML. In my view the element 'crossing' (xsd:type rail3:Crossing) should be expanded in its definition. I miss the possibility of referencing to 'netRelation' (rail3:NetRelation) from this element. What I mean can be shown well using the example of the definition of a double slip in railML v3.1. In contrast to a crossing, this very similar infrastructure element supports referencing to 'netRelation'.

Simplified example of a double slip by railML v3.1

```
<switchIS id="Dhk3FD1ZZsZZfKdMmH8xO7V9" type="doubleSwitchCrossing" >
  <name name="KAM 2" language="en" />
  <spotLocation id="spotlocationId"
    netElementRef="Z3GkdhHfEBn3Xvh6bZZpx2V9" intrinsicCoord="0"/>
  <straightBranch netRelationRef="VyATIZHrOBtcgXQ7DBI5Cfa"/>
  <straightBranch netRelationRef="Z3q46YPEowm4bZHzS4G2Ysl8"/>
  <turningBranch netRelationRef="Z0C40lZZSEq6eSXY9sakbU8"/>
  <turningBranch netRelationRef="iEkqg5X8LFb8Opwn0KNYmb"/>
</switchIS>
```

It would be very helpful for our project if two 'straightBranch' elements would be available, comparable to the 'switchIS' element.

Argumentation:

A crossing can be considered topologically as a simplified switch crossing.

From the safety perspective of interlockings, the branching, merging and crossing of tracks must be modelled in the form of a netRelation. Precisely these structures in the network are to be protected by interlocking measures. The 'natural' identification of such a structure occurs via the topology.

From my perspective, railML v3.1 offers two levels of abstraction for mapping the railway network. Each layer has its own root element/ type.

- a. a 'graph layer' represented by the 'topology' element (rail3:Topology)
- b. an element oriented 'infrastructure layer' represented by 'functionalInfrastructure' element (rail3:functionalInfrastructure)

The linking from the 'infrastructure' layer to the 'graph layer' must be supported when it comes to elementary properties, such as crossing of tracks.

Mit freundlichen Grüßen/Best regards

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