

Dear Christian,

thank you very much for providing solutions for the "mileage changes" topic.

General:

In our way of ETCS trackside engineering, we assign a measured kilometer value to each track element.

Track elements with a linear expansion (like a level crossing or a platform) get an start kilometer value and an end kilometer value.

Therefore, currently we plan to use the netElements as shown below (Example corresponds to the figure of Example 01 in

[https:// forum.railml.org/userfiles/2021-08-24_siemens_railml3-modellingmileagechanges_v01.pdf](https://forum.railml.org/userfiles/2021-08-24_siemens_railml3-modellingmileagechanges_v01.pdf)):

```
<netElement id="ne_13" length="2001.1">
  <relation ref="nr_11_1_13_0"/>
  <relation ref="nr_12_0_13_0"/>
  <relation ref="nr_13_1_14_0"/>
  <relation ref="nr_12_1_13_1"/>
  <associatedPositioningSystem id="ne_13_aps02">
    <intrinsicCoordinate id="ne_13_aps02_ic1" intrinsicCoord="0.0">
      <linearCoordinate positioningSystemRef="lps02" measure="11000.0"/>
    </intrinsicCoordinate>
    <intrinsicCoordinate id="ne_13_aps02_ic2" intrinsicCoord="1.0">
      <linearCoordinate positioningSystemRef="lps02" measure="13001.1"/>
    </intrinsicCoordinate>
  </associatedPositioningSystem>
</netElement>
```

As shown, we provide the measured kilometer value for the start of an edge and the end of an edge,
the attribute length is exactly the difference between start kilometer value and end kilometer value of this edge.

Feedback to the suggestions given in this post:

I understand from your suggestion 1), that the linearPositioning-System can be considered as completely independent from the physical length of the edges. If so, then there is no problem for me, because it is possible to place a mileage change always at a start or an end of the edge. Software tools can check if the provided end kilometer value of the previous edge is the same as the start kilometer value of the connected following edge. If both kilometer values are not identical, then there is a mileage change.

Consequences:

Mileage changes are a little "hidden". But for me, it would be ok.

I like the idea of the anchor elements, because they provide an universal solution for all kinds of mileage changes (gaps, overlaps, compressed and stretched kilometers). But with the solution of "hidden mileage changes", the anchor elements will not often be used, I think.

If you are fine with the "hidden mileage changes" as described, then my problem is solved.

Otherwise, if you want that we shall decide for exactly one of the 3 provided solutions presented in your forum post,

then my favorite solution would be suggestion 3.

Best regards

KARL