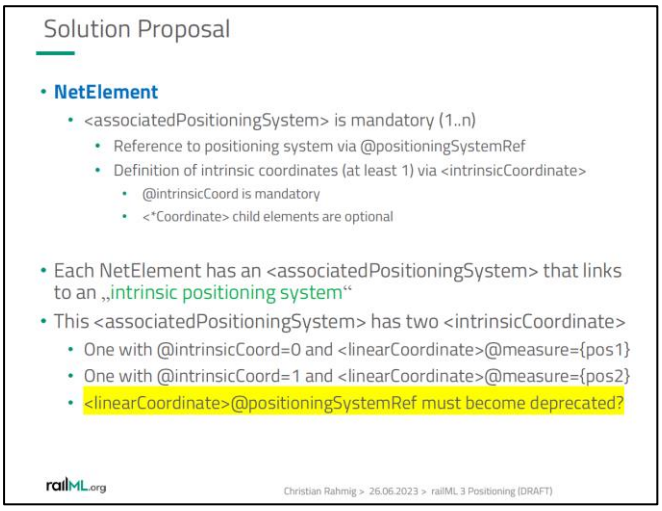
Feedback to railML 3.x modelling suggestion “Positioning”

(railML.org-Presentation of 26.06.2023 from Chr. Rahmig)

2023-11-03

Concerning the questions on:

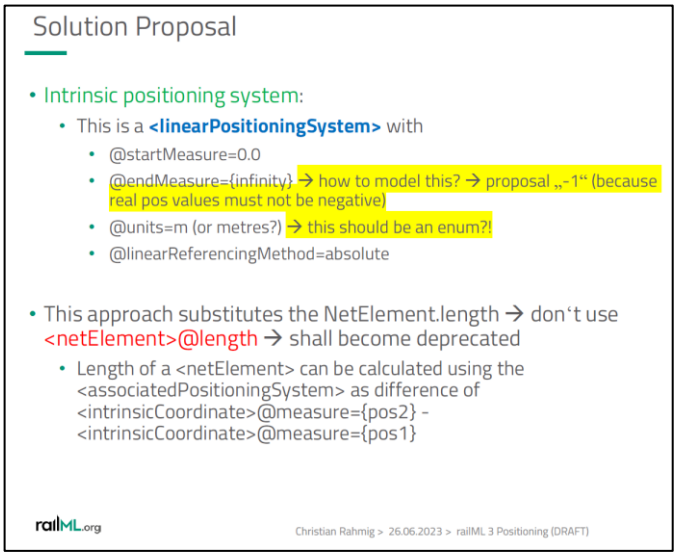
1. slide 12 of 37:



Question: <linearCoordinatelinearCoordinate>@positioningSystemRef must become deprecated?

The “linearCoordinate>@positioningSystemRef”: the related element type “type="rail3:RTM_LinearCoordinate"” is referenced for the positioning of the elements in “functionalInfrastructure”, too. So, it just must not be allowed to be used for netElements. This could also be seen on the following slides, e.g. Slide 18.

2. slide 13 of 37:



Question: How to model infinity?

“@endMeasure {infinity }”: basically, the XSD would allow “INF” for such cases - most programming languages could cope with it. If you wanted to ensure the compatibility with Visual Basic, a value close to 2^32 (4294967296) would be suitable for a wide reaching network.

Question: Value of @units?

... “@units as enum”: This would make sense.

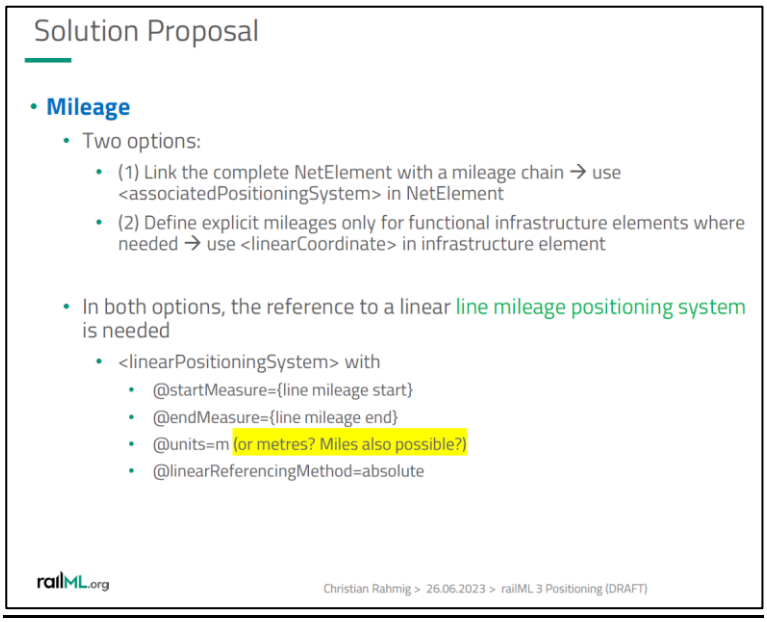
3. slides 17/21/24 of 37:
Question: What shall be the leading location information, if more than one location information is provided in a railML file?
Probably this depends on the applicable Use Case. From the perspective of ETCS, in general we prefer to use the "linear positioning system" with:
   i) highest priority “relative distances” (given by @pos) and
   ii) second priority “absolute line kilometer value” (given by @measure), because:

to i) The exact ETCS trackside measurement produces distances and lengths from reference elements.
to ii) The ETCS engineering uses line kilometer values for the location of elements, because this information is usually provided by the Infrastructure Manager's input documents (like "[Schematic] Signalling Layout Plans")

In case of using intrinisic coordinates only, the corresponding kilometer values for the element locations have to be calculated, and this will lead into rounding problems for the resulting decimal values.

That means:
On slide 20/37: SIEMENS prefers Option 1 ("Linear coordinate in intrinsic positioning system") for Use case ETCS-a/ETCS-b/ETCS-c;
option 2 should be optional only and considered as second priority if the location is given by both options

4. Slide 25/37:



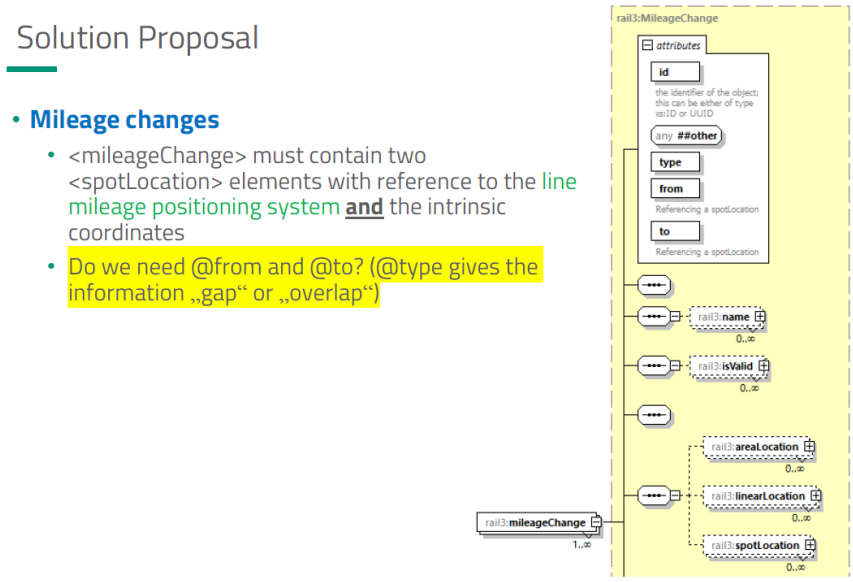
Question: Which option should be used? (1) Mileage chain for all netElements OR (2) mileages only for functional infrastructure elements where needed?
To calculate a mileage value for a location between measured elements with mileage information, it requires option (1).

Question: Metres and/or miles possible as value for @units?
miles should be possible, so that a railML file can include 2 positioning systems (1 system with miles to have a relation to the infrastructure manager's line mileage system in US/UK/other countries), and the second positioning system in meter because the ETCS system always requires length information in a kind of meter system.

5. On slide 28/37 SIEMENS prefers Option "line mileage positioning system" for Use case ETCS-a/ETCS-b/ETCS-c

6. On slide 29/37 SIEMENS prefers Option "(1) Mapping with line mileage positioning system" and on slide 30/37 "(2) line mileage coordinates" for Use case ETCS-a/ETCS-b/ETCS-c

7. Slide 33/37: Mileage changes:



8. railML.org Christian Rahmig > 26.06.2023 > railML 3 Positioning (DRAFT)

Question: Do we need @from and @to? Because @type gives already the information of “gap” or “overlap”?
SIEMENS prefers option "mileageChange" element (on slide 32/37), not anchor, because the ETCS system needs very exact distance information which lead usually to short kilometer jumps at joining switches.
Means that there will be a lot of small kilometer jumps within a station area on siding tracks, even if the general line kilometer band through the station did not include jumps.

SIEMENS prefers to use attributes @from and @to instead of @type, because this option avoids misunderstandings and gives the possibility,
to define exactly the location of the kilometer jump.
--> Solution as shown on slide 35/37 is preferred.

9. Slide 36/37: Additional information for "Geometric coordinates":
Additional information with "Geometric coordinates" should be possible,
but considered as second priority information for the ETCS use case. The sender of the railML file is responsible for consistent information.

SIEMENS agree with rule that a Geometric coordinate may only provided with EPSG code.

written by Martin Zien & Karl-F. Jerosch from 2023-11-03
(2023-12-04 updated with figures of the presentation from Christian Rahmig, railML.org)