
Subject: [railML2] Adding a new element <turningResistance> to <ocp>
Posted by [Michael Gruschwitz](#) on Fri, 18 Jun 2021 10:53:39 GMT
[View Forum Message](#) <> [Reply to Message](#)

*** Deutsche Version siehe unten ***

Dear colleagues!

Within the framework of our BMVI-funded research project "Indres", route networks are to be handed over to the project partners and third parties as macroscopic modelling. Here, the relations of a node are to be assigned turning resistances at the transition from one route section to another route section (or in the special case of turning: to the same section). An exemplary application are path search algorithms for the compilation of trip relations before the train path order of a train. Other applications such as the mapping of wagon orders or traction representations for circulation plans are conceivable, but not the focus of our project.

This macroscopic mapping of the turning resistances is necessary, because in most cases a track-exact microscopic modelling is not yet possible at this stage of the process or these data are not available in the source systems. We had already made suggestions on this at the last meetings, here is the proposal for discussion:

This extension of railML 2 should be implemented explicitly only for an exchange of data in macroscopic modelling (tracks of a line as an edge; stations as a node; station tracks at a node). In this respect, these turning resistances cannot and should not be used as the exclusive criterion of concrete timetables or line occupancies.

We propose the following extensions in this respect:

Introduction of a Turning Resistance element at <ocp> with the following attributes:

- Enumeration of relations depending on the number of edges (e.g. 3 routes = 9 relations).

Here I would suggest to make the complete specification of all relations semantically obligatory when using the element in order to exclude different interpretations by reading programmes.

- Turning resistance with properties such as "with/without vehicle turn", possible obstruction by "oncoming traffic", necessity of manoeuvring.
- priority (integer between 1 and 99; 1 = highest priority; 99 = lowest priority)
- Average delay time due to waiting, shunting or other delays (duration; supplemented by time periods, if necessary, in order to be able to map different obstruction classes (e.g. peak hours/non-peak hours)).

I would leave the exact modelling to the experts. We would be happy to

provide a graphical representation as a basis for discussion and also for later documentation.

Best regards,

--

Michael Gruschwitz
Bahnkonzept Dresden/Germany

Liebe Kollegen!

Im Rahmen unseres BMVI-geförderten Forschungsprojektes "Indres" sollen Streckennetze als makroskopische Modellierung an die Projektpartner und Dritte übergeben werden. Hierbei sollen den Relationen eines Knotens Abbiegewiderstände beim Übergang von einem Streckenabschnitt auf einen anderen Streckenabschnitt (bzw. im Sonderfall des Wendens: auf den selben Abschnitt) zugewiesen werden. Eine beispielhafte Anwendung sind Wegesuch-Algorithmen für die Zusammenstellung von Fahrt-Relationen vor der Trassenbestellung eines Zuges. Weitere Anwendungen wie die Abbildung von Wagenreihungen oder Traktionsdarstellungen für Umlaufpläne sind denkbar, allerdings nicht im Fokus unseres Projektes.

Diese makroskopische Abbildung der Abbiegewiderstände ist notwendig, da eine gleisgenaue mikroskopische Modellierung in den meisten Fällen in diesem Prozeßstadium noch nicht möglich ist oder diese Daten in den Quellsystemen nicht vorliegen. Wir hatten dazu bereits bei den letzten Treffen Anregungen gegeben, hier nun der Vorschlag zur Diskussion:

Diese Erweiterung von railML 2 soll ausdrücklich nur für einen Austausch von Daten in makroskopischen Modellierungen (Gleise einer Strecke als Kante; Bahnhöfe/Stationen als ein Knoten; Stationsgleise an einem Knoten) umgesetzt werden. Dahingehend können und sollen diese Abbiegewiderstände nicht als ausschließliches Kriterium konkreter Fahrpläne oder Streckenbelegungen verwendet werden.

Folgende Erweiterungen schlagen wir dahingehend vor:

Einführung eines Elements Abbiegewiderstand am <ocp> mit folgenden Attributen:

- Aufzählung der Relationen je nach Anzahl der Kanten (z.B. 3 Strecken = 9 Relationen)

Hier würde ich vorschlagen, bei Verwendung des Elements die vollständige Angabe aller Relationen semantisch verpflichtend zu machen, um unterschiedliche Interpretationen bei lesenden Programmen auszuschließen.

- Abbiegewiderstand mit Eigenschaften wie „mit/ohne Fahrzeug-Wende“, mögliche Behinderung durch „Gegenverkehr“, Notwendigkeit des Rangierens
- Priorität (Ganzzahl zwischen 1 und 99; 1 = höchste Priorität; 99 = geringste Priorität)
- durchschnittliche Verzögerungszeit durch Warten, Rangieren oder andere

Verzögerungen (Zeitdauer; ggf. ergänzt durch Zeitperioden, um unterschiedliche Behinderungsklassen (HVZ/NVZ) abbilden zu können)

Die genaue Modellierung würde ich den Experten überlassen. Gern können wir noch eine graphische Darstellung als Diskussionsgrundlage und auch für die spätere Dokumentation zur Verfügung stellen.

Freundliche Grüße,

Michael Gruschwitz
Bahnkonzept Dresden

Subject: Re: [railML2] Adding a new element <turningResistance> to <ocp>
Posted by [christian.rahmig](#) on Fri, 18 Jun 2021 12:37:39 GMT
[View Forum Message](#) <> [Reply to Message](#)

Dear Michael,

thank you for your input. I already filed a Trac ticket for this issue: #413 [1].

[1] <https://trac.railml.org/ticket/413>

Best regards
Christian

Subject: Re: [railML2] Adding a new element <turningResistance> to <ocp>
Posted by [christian.rahmig](#) on Fri, 16 Jul 2021 11:22:12 GMT
[View Forum Message](#) <> [Reply to Message](#)

Dear Michael,
dear all,

did you already have a look at the railML 2.5 solution proposal for the topic of turning resistances in OCPs [1]? How do you like it? What are you missing or what would you change?

Further, here is one question from my side:

* A <relation> refers with its child elements <from> and <to> and included attributes @line and @ocp to neighbouring elements. Shall this reference be modelled using real references or do we want to allow for plain text strings, too? The first option requires that all referenced lines and OCPs have to exist as elements in the same railML file. The second option is more flexible, but provides potential for conflicting entries.

It will be great to hear about opinions and preferences of the community...

[1] <https://trac.railml.org/ticket/413>

Best regards
Christian

Subject: Re: [railML2] Adding a new element <turningResistance> to <ocp>
Posted by [Michael Gruschwitz](#) on Fri, 06 Aug 2021 13:18:57 GMT
[View Forum Message](#) <> [Reply to Message](#)

Dear Christian, dear all,

Thank you for the modelling, which seems appropriate for us. We ask that you implement it and incorporate it into the railML 2.5 standard (as well as in the 3.x standard later on).

With regard to the <relationship>, we consider the free modelling as a string to be attractive and open for a wide range of applications, but we are afraid of various problems when importing into databases and the resulting inconsistencies. Therefore, we ask for modelling using real references for the time being.

With regard to the turning relationship, we would consider a detailed modelling with regard to train movements and shunting movements to be advantageous and submit a proposal for this.

Best regards,

--

Michael Gruschwitz
Bahnkonzept Dresden/Germany

Am 16.07.2021 um 13:22 schrieb Christian Rahmig:

- > Dear Michael,
- > dear all,
- >
- > did you already have a look at the railML 2.5 solution
- > proposal for the topic of turning resistances in OCPs [1]?
- > How do you like it? What are you missing or what would you
- > change?
- >
- > Further, here is one question from my side:
- > * A <relation> refers with its child elements <from> and
- > <to> and included attributes @line and @ocp to neighbouring
- > elements. Shall this reference be modelled using real
- > references or do we want to allow for plain text strings,
- > too? The first option requires that all referenced lines and
- > OCPs have to exist as elements in the same railML file. The
- > second option is more flexible, but provides potential for
- > conflicting entries.

>
> It will be great to hear about opinions and preferences of
> the community...
>
> [1] <https://trac.railml.org/ticket/413>
>
> Best regards
> Christian

Subject: Re: [railML2] Adding a new element <turningResistance> to <ocp>
Posted by [christian.rahmig](#) on Mon, 09 Aug 2021 04:20:06 GMT
[View Forum Message](#) <> [Reply to Message](#)

Dear Michael,

thank you very much for your feedback. I changed the links from the relations to OCP and line from type string to references. Further, I added two more OCP relation type enumeration values: "requiresShunting" and "crossesContraflowTraffic". The complete solution is documented in Trac ticket #413 [1].

[1] <https://trac.railml.org/ticket/413>

Best regards
Christian
