Subject: crossing of 2 continuous tracks
Posted by Matthias Hengartner on Thu, 03 Feb 2005 15:39:34 GMT
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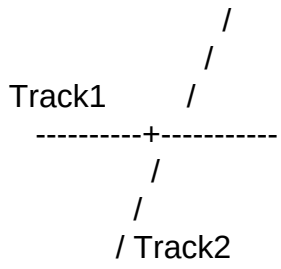
Hello,

Now that we have a "stable" version 1.00, I'd like to come up with an old topic: How to map the following topology on railML:




(2 continuous, tracks which cross each other).

I copy-paste here my ideas from older postings and supplement them with some new considerations:

Given the picture above and assuming that Track1 goes from the left to the right and Track2 from bottom (left) up (right)

So we could have the following implementations in railML:

*** 1 ***

One <crossing> in each <track>, each of them have two <connection>s referring to a <connection> of the other <crossing>.

---> railML:

in Track1:
<crossing>
  <connection connectionID="C1a" branchIDRef="C2b" branchTrackIDRef="Track2" orientation="outgoing"/>
  <connection connectionID="C1b" branchIDRef="C2a" branchTrackIDRef="Track2" orientation="incoming"/>
</crossing>

in Track2:
<crossing>
  <connection connectionID="C2a" branchIDRef="C1b" branchTrackIDRef="Track1" orientation="outgoing"/>
  <connection connectionID="C2b" branchIDRef="C1a"

branchTrackIDRef="Track1" orientation="incoming"/>
</crossing>

When the crossing is a right-angled "simpleCrossing", the orientation would be "rightAngled", of course.

Advantage of this solution:
1) There is a <crossing>-element in both tracks, so it's "symmetric" and both
track are treated equally.
2) The current schema could hasn't to be changed

Disadvantages:
1) There are 2 <crossing>-elements for 1 (physical) crossing

*** 2 ***

Only one <crossing> in one <track>. The other Tracks has 2 "internal connections". These refer to the 2 <connection>s of the <crossing>.

Just outlined:

<track1>
<crossing>
<connection ID="a1" refID="b1">
<connection ID="a2" refID="b2">

<track2>
<internalConnection ID="b1" refID="a1">
<internalConnection ID="b2" refID="a2">

Advantage of this solution:
1) Exactly 1 <crossing>-element for 1 (physical) crossing

Disadvantages:
1) "asymmetric", since the 2 tracks are treated differently
2) The current schema could has to be changed

***
At the moment, I'd prefer the first solution.
Other opinions? Questions? Ideas?

Best regards
Matthias Hengartner

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**********
Matthias Hengartner

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Subject: Re: crossing of 2 continuous tracks
Posted by Volker Knollmann on Tue, 08 Feb 2005 17:02:15 GMT
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On 03.02.2005 16:39, Matthias Hengartner wrote:
> Now that we have a "stable" version 1.00, I'd like to come up with an old
> topic: How to map the following topology on railML:
>
> Track1
>
> Track2
>
> [...]
>
> At the moment, I'd prefer the first solution.

Yes, basing on the current version, I'd agree.

> Other opinions? Questions? Ideas?

Well, what I don't like about the first solution is the flood of
<connection>-elements which are provoked. Theoretically they are not
neccessary, since no track starts or end at a crossing. It's just that
accidently two tracks share the same physical position.

So what if we just declare this physical point? I could be similar to
the following code (let's call it "Version 3"):

```
<track1>
  <crossing pos="InsertRelativePositionOnTrack1Here" crossingTrackId="2"
   crossingLineID="42"
   crossingTrackPos="InsertRelativePositionOnTrack2Here"/>
```

</track1>

<track2>
  <crossing pos="InsertRelativePositionOnTrack2Here" crossingTrackId="1"
   crossingLineID="42"
   crossingTrackPos="InsertRelativePositionOnTrack1Here"/>
</track2>

Additionally, we could introduce a kind of "length"-attribute for the crossing. Thus, a collision of two trains at a crossing could be detected (very much like a level crossing).

Advantages of version 3:
* Tracks are continuous at crossings, just like in real life. No <connection>-flood (IT-Freaks would think of a SYN-Flood here, :-D)
* Easy implementation

Disadvantages:
* Two <crossing>-elements for one real crossing; redundancy; possible inconsistency
* Not compatible with V1.0

Looking forward to your comments,
Volker Knollmann

P.S.: I just found out that I have an urgent appointment in Braunschweig on March 9, so that I cannot come to the RailML-Meeting... perhaps I can shift that appointment to one of my colleagues... I'd rather like to visit Zürich eeeeeeh the railML-conference! ;-)

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Subject: Re: crossing of 2 continuous tracks
Posted by Matthias Hengartner on Wed, 09 Feb 2005 10:37:43 GMT
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Hello,

> Well, what I don't like about the first solution is the flood of
> <connection>-elements which are provoked. Theoretically they are not
> neccessary, since no track starts or end at a crossing. It's just that
> accidently two tracks share the same physical position.
> So what if we just declare this physical point? I could be similar to
> the following code (let's call it "Version 3"):

I partly agree with you. But: For a "simple" <switch> we have 2 <connection>-elements, so it would be not so farfetched if we have 4 <connection>s for a double-switch-crossing. Nevertheless I agree with you that it's not necessary to have redundant and partially useless elements and data just for purposes of datastructure consistency...

>
> <track1>
> <crossing pos="InsertRelativePositionOnTrack1Here" crossingTrackId="2"
> crossingLineID="42"
> crossingTrackPos="InsertRelativePositionOnTrack2Here"/>
> </track1>
>
> <track2>
> <crossing pos="InsertRelativePositionOnTrack2Here" crossingTrackId="1"
> crossingLineID="42"
> crossingTrackPos="InsertRelativePositionOnTrack1Here"/>
> </track2>
>
> Additionally, we could introduce a kind of "length"-attribute for the
> crossing. Thus, a collision of two trains at a crossing could be
> detected (very much like a level crossing).

This version would be nice for simple-crossings, but for switch-crossings it would be useful (or even necessary) to have the possibilities + attributes of <connection>-elements.

How about combining versions 2&3?
We could use <connection>-elements for switch-crossings and do without them for single-crossings. And we could introduce some/all of the proposed attributes in version 3 for single crossings.

Best regards,
Matthias

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