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Subject: railML 2.3 infrastructure extension proposal operational properties of an OCP

Posted by [Torben Brand](#) on Tue, 20 Dec 2016 17:27:26 GMT

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Dear railML infrastructure forum,

This posting contains the discussion to an extension towards the propOperational

In Norway trains are by default only allowed to enter a station one by one, due to safety reasons. If a station is equipped/designed with simultaneous entry features (NO:samtidig innkjør) trains may enter simultaneously. This is necessary to know for the capacity planner, timetable planner and train driver.

The element <propOperational> is extended with the new attribute @NO:samtidigInnkjør [datatype: enumeration]. The attribute has 4 Norwegian preset values and the values "partial" and "none". The precise values of the value "partial" needs to be defined in another system/model.

The attribute @operationalType is extended with the value "siding". In Norway a "siding" is an additional track on the path (section of line between stations). It is not a station according to Norwegian definition as it does not have a main-home signal. Thus the path on the siding needs to be blocked during the operation of entering and leaving the siding. PS. There is a trackType under track with value "sidingTrack" This is described in the Wiki as: "This is a siding"

The attribute @operationalType is extended with the value "halt". In Norway we need to separate between a halt within a station and outside the station (on the path). I suggest to use the existing operationalType "stoppingPoint" with halts within the station (As this correlates with the Norwegian name "stoppested"="stoppingplace"). And the new operationalType "halt" for halts on the path. It needs to be defined if a station is remote controlled (by CTC). Thus we have added the new boolean attribute @NO:remoteControlled. Later extensions could define which remote controller (CTC) is controlling the interlocking controller.

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Subject: Re: railML 2.3 infrastructure extension proposal operational properties of an OCP

Posted by [christian.rahmig](#) on Mon, 02 Jan 2017 16:29:08 GMT

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Dear Torben,

Am 20.12.2016 um 18:27 schrieb Torben Brand:

- > [...]
- > propOperational
- > In Norway trains are by default only allowed to enter a
- > station one by one, due to safety reasons. If a station is
- > equipped/designed with simultaneous entry features
- > (NO:samtidig innkjør) trains may enter simultaneously. This
- > is necessary to know for the capacity planner, timetable
- > planner and train driver. The element <propOperational> is extended
- > with the new
- > attribute @NO:samtidigInnkjør [datatype: enumeration]. The

- > attribute has 4 Norwegian preset values and the values
- > "partial" and "none". The precise values of the value
- > "partial" needs to be defined in another system/model.

The reasons for having the attribute seem clear to me. Can you tell us what are the four Norwegian preset values for this parameter? Further, instead of "partial", which is rather unspecific, I would prefer having more concise values instead. Are there any other railways that make use of such an attribute? If yes, I have no objections against creating a Trac ticket and implementing this attribute with the next release.

- > The attribute @operationalType is extended with the value
- > "siding". In Norway a "siding" is an additional track on the
- > path (section of line between stations). It is not a station
- > according to Norwegian definition as it does not have a
- > main-home signal. Thus the path on the siding needs to be
- > blocked during the operation of entering and leaving the
- > siding. PS. There is a trackType under track with value
- > "sidingTrack" This is described in the Wiki as: "This is a
- > siding"

Yes, railML already allows to specify a track as being a siding track by setting <track type="sidingTrack">. However, what is missing is an operational representation of the siding as you request it. Therefore, your suggestion to add the enumeration value "siding" for the attribute @operationalType seems to be valid. Is there anybody among the railML community who needs to model sidings outside of stations, too?

- > The attribute @operationalType is extended with the value
- > "halt". In Norway we need to separate between a halt within
- > a station and outside the station (on the path). I suggest
- > to use the existing operationalType "stoppingPoint" with
- > halts within the station (As this correlates with the
- > Norwegian name "stoppested"="stoppingplace"). And the new
- > operationalType "halt" for halts on the path.

An operation control point <ocp> is located on a track indirectly via the <crossSection> element. The track itself can be classified as a station track or a main route track via its attribute @type. Thus, it is possible to distinguish between an OCP within a station and an OCP outside the station (de: "freie Strecke"). Consequently, it is not absolutely necessary to introduce a new enumeration value "halt" for <ocp><propOperational>@operationalType. Your example may look like this:

```
<track id="tr01" type="stationTrack">
  <trackTopology>
    <crossSections>
      <crossSection id="cs01" pos="123.4" ocpRef="op01">
```

```
</crossSection>
</crossSections>
</trackTopology>
</track>
....
<ocp id="op01">
  <propOperational operationalType="stoppingPoint">
    </propOperational>
  </ocp>
```

However, the solution is complex and it requires <track> elements in order to locate the OCP via their <crossSection> elements. Your proposed attribute adaptation would work also without tracks and it would assign the feature directly to the OCP. Therefore, I am open for more opinions on this issue to find a practical solution.

- > It needs to be defined if a station is remote controlled (by
- > CTC). Thus we have added the new boolean attribute
- > @NO:remoteControlled. Later extensions could define which
- > remote controller (CTC) is controlling the interlocking
- > controller.

Accepted. Instead of a boolean attribute, it might be useful to define an enumeration attribute in order to specify the type of controlling. On the other side, the detailed definition of station control should be done in the <controller> element and therefore your suggested solution with the boolean attribute seems to fit well.

Best regards  
Christian

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**Subject: Re: railML 2.3 infrastructure extension proposal operational properties of an OCP**

Posted by [Torben Brand](#) on Fri, 24 Feb 2017 14:33:41 GMT

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Christian Rahmig wrote:

Can you tell us

what are the four Norwegian preset values for this parameter? Further, instead of "partial", which is rather unspecific, I would prefer having more concise values instead. Are there any other railways that make use

of such an attribute? If yes, I have no objections against creating a Trac ticket and implementing this attribute with the next release.

My reply:

The four Norwegian generic values for simultaneous entry are: Standard, alternative 1, alternative 2 and alternative 3. For more information, see:

[https://trv.jbv.no/wiki/Signal/Prosjektering/Forriglingsutru\\_string#Samtidige\\_togbevegelser](https://trv.jbv.no/wiki/Signal/Prosjektering/Forriglingsutru_string#Samtidige_togbevegelser)

The Norwegian line description book (DE:"Streckenbuch") lists the four alternatives, but also stations with "partial" functionality. This means that some routes have simultaneous entry functionality and others do not on the same OCP. This is an indicator to get more information from other sources. One future source could be the upcoming interlocking schema. An alternative would be to have a sub-element that refers to the specific routes that have simultaneous entry. This would require routes to be described in railML. Therefore, I suggest to leave it at "partial".

An operation control point <ocp> is located on a track indirectly via the <crossSection> element. The track itself can be classified as a station track or a main route track via its attribute @type. Thus, it is possible to distinguish between an OCP within a station and an OCP outside the station (de: "freie Strecke"). Consequently, it is not absolutely necessary to introduce a new enumeration value "halt" for <ocp><propOperational>@operationalType.

As I read the documentation a <track>@type"mainTrack" is valid for both the path and the stations.

To be able to separate between a main track in a station and on the path, we need to add a new value "mainStationTrack"? But this would remove the possibility for long tracks through stations. See railML wiki: mainTrack=DE:"durchgehendes Hauptgleis" and stationTrack=DE:"Bahnhofsgleis (Hauptgleis im Bahnhof)" and compare to Fiedler „Bahnwesen" 5.Auflage page 311-312. However, this is not relevant if I understand the documentation to be that there is only one main track, independent from path or station.

However, the solution is complex and it requires <track> elements in order to locate the OCP via their <crossSection> elements. Your proposed attribute adaptation would work also without tracks and it would assign the feature directly to the OCP. Therefore, I am open for more opinions on this issue to find a practical solution.

I agree the solution is complex.

It would be easier, as you suggest, to create a new enumeration value to distinguish between a stopping point within a station (today's value "stoppingPoint") and on the path (new value "NO:halt", like I suggest).

Also alternatively, you could use value "stoppingPoint" for both and use the suggested line section extension to determine if a ocp (or any other object) is within a station or on the path. But this would again be somewhat complex and require the use of an optional new extended element. For macroscopic purposes I suggest the approach with the new enumeration "halt".

Subject: Re: railML 2.3 infrastructure extension proposal operational properties of an OCP

Posted by on Thu, 18 May 2017 15:51:04 GMT

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Dear Christian and Torben,

>> The attribute @operationalType is extended with the value  
>> "siding". In Norway a "siding" is an additional track on the  
>> path (section of line between stations). It is not a station  
>> according to Norwegian definition as it does not have a  
>> main-home signal. Thus the path on the siding needs to be  
>> blocked during the operation of entering and leaving the  
>> siding. PS. There is a trackType under track with value  
>> "sidingTrack" This is described in the Wiki as: "This is a  
>> siding"

>  
> Yes, railML already allows to specify a track as being a siding track by  
> setting <track type="sidingTrack">. However, what is missing is an  
> operational representation of the siding as you request it. Therefore,  
> your suggestion to add the enumeration value "siding" for the attribute  
> @operationalType seems to be valid. Is there anybody among the railML  
> community who needs to model sidings outside of stations, too?

Yes, of course. In Germany (and other countries), we have the same type of sidings. In Germany they are called Anschlussstelle und Ausweichanschlussstelle depending on interlocking and operational rules. It is an <ocp> but not a station. In both cases, the line track has to be blocked between the adjacent stations during the operation of entering and leaving the siding.

Currently we model such an <ocp> as follows:

```
<ocp id=...>
  <propOperational orderChangeable='false'
ensuresTrainSequence='false' />
  <propService goodsLoading='true'/>
  <propEquipment>
    <summary hasHomeSignals='false' hasStarterSignals='false'/>
  </propEquipment>
```

We do not model the siding itself since there can be no train operation at it (just shunting). The train begins and ends at the main track at the <ocp>.

The intention of "sidingTrack" is to model any non-main track, independently whether in stations or line-side. "Non-main track" means tracks with no train operation, just shunting.

I think it's not necessary to explicitly distinguish between a siding of a station or a line-side siding. Torben has already suggested to create a possibility to assign track elements to <ocp>s. This implements the solution to distinguish the two kinds of sidings.

Best regards,  
Dirk.

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Subject: New reflected thoughts towards infrastructure extension proposal  
operational properties of an OCP

Posted by [Torben Brand](#) on Fri, 14 Jul 2017 07:46:04 GMT

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Some ocp's have areas (usually stations) as others are point based (usually stopping point). But it is up to the user to define this. They can do this through referencing tracks under the existing sub element <ocp/propEquipment/trackRef>.

See also discussion under "line section": An alternative to lineSection type "openSection" (NO:"linjen",DE:"freihe Strecke" railML wiki "open track", term to be fixed), could be to add a new <propOperationa @operationalType="openSection". I do not recommended this, as the open section is not an ocp and ocp's can overlap the open section. Thus a solution in lineSection is recommended. What do you think?

In Norway we also have ocp's on main signals in large stations that have alternative entry routes from the same neighbour ocp into the station. This is a sort of mesoscopic modelling where there is missing a microscopic route allocation defining the path into the station. Thus I suggest to add an new value for ocp @operationalType:"other:mainSignal"

I also like to suggest to add a macroscopic attribute to all ocp's a @timingPoint [absPos mileage]. Today the timing point can only be defined in an ocp microscopically on the track level as a <crossSection> which have to be defined per track. For macroscopic models the new approach would be simpler. Also historically an ocp (in Norway) has an absPos mileage timing point, where the local dispatcher used to sit. Today's remote controlled stations have no longer local dispatchers, but retain the same timing point for timetable purposes. But also additional timing points have been allocated to TVD's, for automatic time registration purposes. If we have the @timingPoint we could allocate the ocp general TT mileage there. This is used in timetabling and is deemed sufficient there. But for the use case simulation we would like to use the timing points of the TVD's. We could then use today's <crossSections> to define the automatic timing points. An alternative is to use both <crosssection>@type:"station" for the macroscopic timing point and <crosssection>@type:"autoblock" for the microscopic automatic time registration point (but I am uncertain if this is the correct use of the value "autoblock"). But this solution would lose the macroscopic advantage.

Ps. Could anyone describe the values "autoblock" and "block" @type <crossSection>? I could not find anything either in wiki, forum nor schema.

We in Norway still think it's important to have a separate operationalType for "siding". Mapping the ocp like Dirk describes with describing the ocp's characteristics in 6 lines with the attributes

describing it in propOperational, propEquipment and propService seems less efficient as to define one unique term. We suggest to differentiate between "Anschlussstelle" and "Ausweichanschlussstelle" through use of @ensuresTrainSequence. We define all passing times for "sidings" ocp's in the TT in Norway today. So it would be usefull to differentiate them as <propOperational @operationalType="siding" in the TT as well.

I propose to retract my suggestion for a new <propOperational>@operationalType:"halt". The purpose of this was to model stopping points within stations. I think that this can be sufficient modelled through using the existing @operationalType:"stoppingPoint" in combination with a set value for <ocp>@ocpParentRef. This will indicate that the stopping point is part of another ocp presumably a station and thus in Norway a "stoppested" (stopping point within a station).

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