Subject: railML 2.3 infrastructure extension proposal signal types and functions
Posted by Torben Brand on Tue, 20 Dec 2016 17:34:22 GMT
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Dear railML infrastructure forum,
This posting contains the discussion to an extension towards the
signal
We need to model all relevant signals to the use case according to Norwegian law (https://lovdata.no/dokument/SF/forskrift/2008-02-29-240/KAPI TTEL_9#KAPITTEL_9.
This is done through extending the type (5 new values) and function (2 new values) attributes.
The defined combination of type and function form the specific signals in Norway, but are considered universal. So the terms are in English.
There are two Norwegian specific signals that are part of a type main signal and are thus defined in new sub elements under signal in Norwegian.
The new values for the attribute @type under element <signal> are:
• "danger"
Used in Norway for signals that indicate that an avalanche fence has been broken. We chose a more generic description for warning signs in general. Other examples that fit the specification could be: cross wind signals. If there is a need to further distinguishes a type of danger signal I suggest using a later added sub element or extended value range of function.
• "derailer"
Indicates if the derailer has blocked the track.
• "switch"
Indicates the position of the switch.
• "trackIndicator"
Repeats (only) to the conductor the state of the main-exit signal. This is a different signal than a type repeater signal (that is valid for the train driver).
• "road"
Road side signals not valid for the train driver. But contained in schematic drawings.
The new values for the attribute @function under element <signal> are:
• "area"
Signals that are valid for a (undisclosed) area and not a signal route.
• "levelCrossing"
Defines either a type main/distant/road. Further attributes to be found in existing sub element <levelCrossing>
The new sub elements under element <signal> are:
• <NO:forsiktigKjøring>
Sub signal under type main and function home or intermediate. Used for shortened signal routes or dead end tracks.
• <NO:middelkontrolllampe>
Sub signal under type main and function exit or intermediate to indicate that the train is within the clearance point.

Subject: Re: railML 2.3 infrastructure extension proposal signal types and functions
Posted by christian.rahmig on Mon, 16 Jan 2017 11:44:46 GMT

Dear Torben!

Am 20.12.2016 um 18:34 schrieb Torben Brand:
> [...]
> signal
> We need to model all relevant signals to the use case
> according to Norwegian law
> (https://lovdata.no/dokument/SF/forskrift/2008-02-29-240/KAPI TTEL_9#KAPITTEL_9).
>
> This is done through extending the type (5 new values) and
> function (2 new values) attributes. The defined combination
> of type and function form the specific signals in Norway,
> but are considered universal. So the terms are in English.
> There are two Norwegian specific signals that are part of a
> type main signal and are thus defined in new sub elements
> under signal in Norwegian.

The whole topic of signalling is currently an underdeveloped field in railML. Considering the upcoming railML interlocking topics, railML infrastructure scheme needs to react on the requirements from interlocking and extend the signal model. This will be part of railML v3 and need to be discussed in detail with the community. For railML v2.3 the key attributes for specifying a signal are - as you correctly identified - <signal>@type and <signal>@function.

> The new values for the attribute @type under element
> <signal> are:
> • "danger"
> [...]
> • "derailer"
> [...]
> • "switch"
> [...]
> • "trackIndicator"
> [...]
> • "road"
> [...]

I suggest to extend the attribute <signal>@type following the ideas of OpenStreetMap (see [1]). In particular, @type may have the following values:

* main
* main_repeated
* distant
* minor
* minor_distant
* combined

* shunting
* crossing (or levelCrossing)
* crossing_distant (or levelCrossing_distant)
* crossing_info (or levelCrossing_info)
* crossing_hint (or levelCrossing_hint)
* electricity
* humping
* speed_limit
* speed_limit_distant
* whistle
* ring
* route
* route_distant
* wrong_road
* stop
* stop_demand
* station_distant
* radio
* departure
* resetting_switch
* resetting_switch_distant
* snowplow
* short_route
* fouling_point
* train_protection
* ##(other)

Except for the proposed "road" this list looks quite exhaustive to me.
Do you miss any type of signal?

> The new values for the attribute
> @function under element
> <signal> are:
> • "area"
> [...]
> • "levelCrossing"
> [...]

The proposed values don't seem to be functions, but types. Do you find them in the previous list? For the attribute @function, I suggest to adapt the list of possible values to the tagging proposal of OpenStreetMap (see [1]). In particular, OSM distinguishes between the following signal functions:

* entry (instead of home)
* exit
* block (instead of blocking)
* intermediate

> The new sub elements under element <signal> are:
> • <NO:forsiktigKjøring>
> [...]
> • <NO:middelkontrolllampe>
> [...]
>

These two types of signals seem to be very specific. What kind of signal features do you need in order to have this type of signal modelled as sub element? Alternatively, if you do not want to define the signal in detail, you could model them via the parameter <signal>@type if it allows to have an other enumeration value ("any enumeration value").

To summarize: signalling remains a very country-specific topic. With the attributes @type and @function, railML infrastructure provides the possibility of having a basic generalized approach. By keeping the enumeration of @type open (by using an other enumeration value), the model remains open for any specific extensions. <signal> sub elements shall only be used if detailed attributes of the signals have to be defined.

[1] http://wiki.openstreetmap.org/wiki/Tag:railway%3Dsignal

Any comments or questions are appreciated...

Best regards
Christian

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Subject: Re: railML 2.3 infrastructure extension proposal signal types and functions
Posted by Torben Brand on Fri, 24 Feb 2017 15:16:19 GMT
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Christian Rahmig wrote:
The whole topic of signalling is currently an underdeveloped field in railML. Considering the upcoming railML interlocking topics, railML infrastructure scheme needs to react on the requirements from interlocking and extend the signal model. This will be part of railML v3 and need to be discussed in detail with the community. For railML v2.3 the key attributes for specifying a signal are - as you correctly identified - <signal>@type and <signal>@function.

My reply:
Agreed, we continue to use <signal>@type and <signal>@function in railML2 and use it in railML3. The structure is also used in OpenStreetMap.

I suggest to extend the attribute <signal>@type following the ideas of OpenStreetMap (see [1].
Except for the proposed "road" this list looks quite exhaustive to me.
Do you miss any type of signal?

I miss, in the OSM list, my proposed signal types (see original posting for explanation): danger, derailer, switch and main level crossing. The signal type I suggested "road" is contained in OSM type "crossing" ("A signal that indicates that the technical equipment (lights, barriers, bells) of a level crossing is active to warn automobile drivers about an approaching train.") The type distant level crossing is contained in OSM type "crossing_distant". Interestingly it refers to a "level signal" that is not contained in the OSM type list ("A signal which notifies the train driver to attend a level signal which will follow."). OSM should thus be extended with signal type "crossing_main".
Is there plans for compatibility between OSM signal types and railML3? What about their use of underscore as a separator? In railML2 upper-case letters are used as separators.

The proposed values [<signal>@function "area" and "levelCrossing"] don't seem to be functions, but types.

I agree that the suggested values should be types and not functions.

These two types of signals [sub elements <NO:forsiktigKjøring> and <NO:middelkontrolllampe>]seem to be very specific. What kind of signal features do you need in order to have this type of signal modelled as sub element? Alternatively, if you do not want to define the signal in detail, you could model them via the parameter <signal>@type if it allows to have an other enumeration value ("any enumeration value").

I used sub-elements as these signals belong to a main signal. Just as the existing sub-element "line signal" (XSD:"sub-element for defining a line signal or panel"). I understand now that I misunderstood. The sub-elements are used to describe a signal (type) further, not to attach another signal to a main signal. I will change my extension to using signal types (with the same absPos as the main signal).

Well summarized. We should try to model the common ground in railML, but leave the possibility for country specific signals.
I suggest, based on the feedback, to change my suggested extension for signal to:
<signal>@type"other:danger" https://lovdata.no/forskrift/2008-02-29-240/9-30
<signal>@type"other:derailer" https://lovdata.no/forskrift/2008-02-29-240/9-27
<signal>@type"other:switch" https://lovdata.no/forskrift/2008-02-29-240/9-25
<signal>@type"other:crossingMain" https://lovdata.no/forskrift/2008-02-29-240/9-28
<signal>@type"other:crossingDistant" https://lovdata.no/forskrift/2008-02-29-240/9-29
<signal>@type"other:crossingRoad" https://trv.jbv.no/wiki/Signal/Prosjektering/Veisikringsanle

gg#Signal_mot_vei_3
<signal>@type"other:shuntingArea" https://lovdata.no/forskrift/2008-02-29-240/9-22
<signal>@type"other:slowSpeed" https://lovdata.no/forskrift/2008-02-29-240/9-19
<signal>@type"other:clearedFouling" https://lovdata.no/forskrift/2008-02-29-240/9-19
<signal>@type"other:line" https://lovdata.no/forskrift/2008-02-29-240/9-20
<signal>@type"other:deflectingSpeed" https://lovdata.no/forskrift/2008-02-29-240/9-24

Short explanation:
"shuntingArea" is placed on a main exit signal. Is used for a shunting area instead of a shunting signal that is used for a shunting route.
"slowSpeed" is placed on a main home or intermediate signal. Is used for routes ending in a buffer stop or for shortened routes.
"clearedFouling" is placed on a main exit signal. The signal indicates when the last axel has passed the fouling point.
"line" is placed on a main exit signal. Is used to indicate which line the set route applies to.
"deflectingSpeed" is placed on a main home signal. Is used to indicate the deflecting speed for the applied route. The speed value itself will be described in the existing sub-element <SignalSpeed> referring to a speed change.

<signal>@function I leave as it is in railML 2.3.

I agree that we can change the following values in railML3 (but not so important for me):
railML2 :
<signal>@function"home"
<signal>@function"blocking"

RailML3/OSM:
<signal>@function"entry"
<signal>@function"block"

The "track indicator" signal is very Norwegian specific. I suggest instead to describe it as a variant of a repeater signal with sub-element use:
<signal>@type"repeater"@function"exit"
  <NO:togsporsignal>

Subject: [railML 2.4] level crossing railway signals
Posted by christian.rahmig on Mon, 20 Aug 2018 15:37:16 GMT
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Dear Torben,

in your list of signal types, let's have a closer look at the level
crossing related signals...

Am 24.02.2017 um 16:16 schrieb Torben Brand:

> [...]I suggest, based on the feedback, to change my suggested
> extension for signal to:
> <signal>@type"other:danger"
> https://lovdata.no/forskrift/2008-02-29-240/9-30
> <signal>@type"other:derailer"
> https://lovdata.no/forskrift/2008-02-29-240/9-27
> <signal>@type"other:switch"
> https://lovdata.no/forskrift/2008-02-29-240/9-25
> <signal>@type"other:crossingMain"
> https://lovdata.no/forskrift/2008-02-29-240/9-28
> <signal>@type"other:crossingDistant"
> https://lovdata.no/forskrift/2008-02-29-240/9-29
> <signal>@type"other:crossingRoad"
> https://trv.jbv.no/wiki/Signal/Prosjektering/Veisikringsanle gg#Signal_mot_vei_3
>
> <signal>@type"other:shuntingArea"
> https://lovdata.no/forskrift/2008-02-29-240/9-22
> <signal>@type"other:slowSpeed"
> https://lovdata.no/forskrift/2008-02-29-240/9-19
> <signal>@type"other:clearedFouling"
> https://lovdata.no/forskrift/2008-02-29-240/9-19
> <signal>@type"other:line"
> https://lovdata.no/forskrift/2008-02-29-240/9-20
> <signal>@type"other:deflectingSpeed"
> https://lovdata.no/forskrift/2008-02-29-240/9-24

The railML schema already provides a dedicated level crossing signal with different types (see [1]). Instead of "crossingDistant", railML models a <signal><levelCrossing>@type="activating". The "crossingMain" is missing in railML. Based on the signal's functionality I suggest to name it <signal><levelCrossing>@type="supervision".

On the other side, level crossing road signals open a wide field of examples and implementations. For short-term release of railML 2.4, a well-formed solution will not be available. In general, I would like to see these signals somehow implemented under the umbrella term level crossing protection - definitely a task for railML 3...

I created a Trac ticket [2]. Please feel free to provide your opinion on this topic.

[1] https://wiki.railml.org/index.php?title=IS:levelCrossing_sig nal
[2] https://trac.railml.org/ticket/338#ticket

Thank you and regards
Christian

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Subject: Re: [railML 2.4] level crossing railway signals
Posted by christian.rahmig on Thu, 30 Aug 2018 14:46:21 GMT
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Dear all,

ticket #338 [2] is going to be implemented with railML 2.4.

Best regards
Christian

--
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Am 20.08.2018 um 17:37 schrieb Christian Rahmig:
> [...]
> I created a Trac ticket [2]. Please feel free to provide your opinion on
> this topic.
>
> [1] https://wiki.railml.org/index.php?title=IS:levelCrossing_sig nal
> [2] https://trac.railml.org/ticket/338#ticket