
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

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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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