
Subject: signals etc.

Posted by [Gregor.Theeg](#) on Fri, 01 Oct 2004 15:13:04 GMT

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Dear Ulrich Linder,

Referring to signals, I suggest the following changes:

They should get following additional attributes:

- "trackDist", which means the distance from the track they belong to in [m]. + is right, - left from the track.
- "height", which means height of the signal (= its red light) above top of rail

The attribute "maskable" we should divide into 2 different attributes: maskableRoute and maskableATC.

Background: There are 3 different types of "black" signals in German terminology:

- Extinct (erloschen) is a signal which shows no aspect due to damage. A driver who sees this signal has to assume the aspect that requires the highest caution, that means for main signals to stop immediately. This should not be of our special interest.
- Switched off (abgeschalten) is a signal which is not needed for the route set at the moment, but stands at this route. Usually we have this case at intermediate signals in stations. To distinguish them from the first mentioned (which would force the driver to stop), in Germany they are marked with a small white light (Kennlicht).
- Switched dark (dunkel geschalten): When a line has automatic train control with cab signalling (e.g. LZB or ETCS level2), the cab signal has higher priority than the signals on the line. Driver has to obey only the cab signals, whichever colour the line signals show. Because we don't want to confuse the driver, these signals can be switched dark.

Because signals already have a lot of attributes and will have much more later, we should sort them into 4 container elements:

element "identification" with attributes elemID, name, absPos, absPosOffset, switchable, virtual, signalBoxID, stationID

element "position" with attributes pos, dir, trackDist and the sub-element geoCoord

element "physical" with attributes sight, height and many more attributes in later versions

elements "signalAspects" with attributes type, function, sigSystem, maskableRoute, maskableATC and later the definition of aspects

If signals are automatically controlled (e.g. automatic block), this is a problem of interlocking (or better: operation control), thus we should leave it out here and spare it for interlocking schema. The same refers to the danger point where, depending on route and overlap, can be several

danger points behind the same signal.

The signal aspects are a very complex topic if we want to make a schema which covers all European systems. Although the idea "vDirect, vDistant" covers Central and Eastern Europe to a large extent, for the rest of the continent it is absolutely insufficient. Some countries have junction or direction signalling instead of our speed signalling. Often 3 (not only 2) block sections are signalled at the same signal and some countries even give information on the whole way through a station already at the entrance distant signal (such as Spain or Belgium), others (like Russia and China) have aspects like "free until next station" even if there are several block signals between. In Sweden a speed restriction 40 km/h implies stop at the next signal. More information you can find in my presentation from 6th railML meeting. I think we should leave it out for the moment, it will be some of the hardest work when thinking about interlocking. Or does somebody urgently need it?

At speed changes, we shall leave out the attribute "restricted speed". This is a problem of diverging routes in interlocking and we should define it there. At the same place, there can be very different diverging speeds, depending on the route.

The blocks also belong into the interlocking schema.

In interlocking a switch crossing (Kreuzungsweiche) is handled as 2 single switches. To refer to them, each of these 2 parts needs an own ID. I suggest to add 2 additional attributes besides the ID of the switch: ID1 and ID2, where ID1 is the ID of the lower and ID2 the ID of the higher part in direction of internal positioning of the track where the switch is defined. When element ID is 3, for example, ID1 would be 3a und ID2 = 3b.

Best regards,
Gregor Theeg
