Subject: [IL] Signal Aspects
Posted by Gregor Theeg on Wed, 23 Nov 2005 15:02:08 GMT
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Dear railML partners,

here I want to send an approach for defining signal aspects in railML. I analyzed the various European Signal systems and tried to find a structure which can be used for all systems. Of course, not all specialities are defined yet, but I hope it will be possible to define everything which is necessary by extending the schema.

I suggest to make another wiki for discussing the signal aspects. Maybe also my syntax in xml can be improved by somebody who can deal better with the xml-spy than me.

Where to place the signals? My idea is to place them in:
railML --> infrastructure --> lines --> line --> tracks --> track --> track elements --> signals --> signal --> signalAspects

About the structure of signalAspects: First you can distinguish between
- train aspects (regular operation)
- shunting aspects
- auxilary aspects (Ersatzsignal, Hilfssignal, Befehlssignal or whichever name you want to give them).

The train aspects are a bit difficult to describe because there are many different aspects in the world.

The most common solution is to give a speed for the section beginning at the signal ("main") and a speed announcement for the section beginning next signal ("distant1"), independent from wheather the signals are main or distant signals.
Some railways also use signal aspects giving information over three sections, like the "Preliminary warning" which means that the second next signal shows "Stop" and the distance from the next to the second next is not enough to brake. This is done in Switzerland (yellow light with a "V" below), France (yellow flashing), Britain (double yellow) and Belgium (green above yellow), for example.

To make the file shorter, it is possible to write several "main" and "distant1" into one signal aspect (which should better be called aspect group" in this case. An example:

```
<sectionAspect>
 <main>Proceed</main>
 <main>60</main>
 <distant>Proceed</distant>
 <distant>40</distant>
```

</sectionAspect>
would mean that each main aspect can be combined with each distant aspect. Following aspects can be shown:
- "Proceed and expect Proceed"
- "Proceed and expect 40"
- "60 expect Proceed"
- "60 expect 40"
The "60 and expect Proceed" does not always make sence, therefore some signal systems don't announce the "Proceed" in this case. That could be distinguished by the attribute "increase" (Yes/No).
The attribute "speedTo" is to define until where the speed restriction is valid (next signal / last point / etc).

Of course, "Stop" is not the same as "Stop". The most important Stop aspects are the Absolute Stop and the Permissive Stop (Stop and Proceed on sight; used at block signals).

"Proceed" permits the maximum speed which is allowed on this line using lineside signals.
"Continue" means that driver is allowed to continue at the speed he has seen at the signal in rear. This would be used for distant signals which give no information about the section beginning at the signal, but only for the next. But also in some signal systems (France, Belgium, Denmark) a reduced speed is not repeated at the exit signal of a station. The driver has to remember the speed seen at the entry signal and obey this, even if the exit signal shows just green. Such a signal would be able to give the "main" information "Continue" and "StopAbsolute", in some cases (France) also "StopPermissive" if the route is set but occupied by another train.

It would be too easy if all signal systems in the world would follow the principle "this section --> next section". Some railways also have a signal aspect which means: "When passing the signal, start braking until you have reached a certain speed, then keep this speed." This we have in the Netherlands and in Portugal, for example. This certain speed can also be a Permissive Stop, like at the "Disque" signal in France.

By how, the route principle which exists in Britain, Spain and others where the driver is informed about the route the train is going to take and then has to conclude the speed, has not been defined. This should be added later if required.

Well, I'm waiting for the discussion.
Regards

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File Attachments

1) signalAspects.xsd, downloaded 442 times