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Subject: Question from T. Graffagnino from SBB  
Posted by [Daniel Huerlimann](#) on Fri, 29 Sep 2006 09:30:34 GMT  
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Dear group

I am posting this question of behalf of Thomas Graffagnino from SBB.

Regards

Dani Huerlimann

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Hello

I am new to RailML and didn't find any in depth explanation about the Infrastructure Schema v 1.00. On a "Studienarbeit" "Modellierung einer Eisenbahn-Infrastruktur in RailML" from Mr Fries, I found interesting informations which are sadly not actual anymore...

I am particularly interested in coding "Fahrbeurteile"-signal aspects, "Freigabepunkte"-release points and "Zugnummernmeldepunkten"-train number transmission points (free english translations). In the document of Mr Fries are the following elements described:

Element <signal>

Element <disposition>

Element <clearTrackContrElements>

Element <trackCircuitBorder>

Element <axleCounter>

I would like to use them in a correct manner but I didn't found any further description of these elements which would avoid a misuse-

Could any one help ?

Has anyone any document describing the Infrastructure Schema a little more in depth ?

Has anyone example of how to use it correctly ?

Thank you in advance.

Best Regards from Switzerland  
Thomas Graffagnino  
SBB AG, I-BF

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Subject: Re: Question from T. Graffagnino from SBB  
Posted by [Volker Knollmann](#) on Thu, 05 Oct 2006 07:40:46 GMT  
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On 29.09.2006 10:24, GRAFFAGNINO THOMAS wrote:  
> In the document of Mr Fries are the following elements described:  
>  
> Element <signal>  
> Element <disposition>  
> Element <clearTrackContrElements>  
> Element <trackCircuitBorder>  
> Element <axleCounter>  
>  
> I would like to use them in a correct manner but I did'nt found any  
> further description of these elements- Could you help ?

The elements <disposition>, <clearTrackContrElements> and <axleCounter> are not part of the current infrastructure schema. IIRC they were part of a former version, which was used at the time Mr. Fries wrote his thesis.

The <trackCircuitBorder> describes a joint of two track circuits: one track circuit ends, the next one starts. Since railML intends to use loooong <track>-elements, one <track> can span multiple track circuits and therefore, an elements is required to define the joint (or the border) between two track circuits. That's <trackCircuitBorder>.

It uses the common attributes of every element (ID, relative position

along the <track>, absolute position, etc) and has an additional attribute describing the electrical isolation between the rails at the position of the joint. The isolation joint position can be "none", "left", "right" or "both". As usual, "left" and "right" are seen in nominal direction (rising mileage).

By the way: axle counters can be modeled using the sibling element of <trackCircuitBorder>, which is <trainDetector>. Just set "axleCounting" to "True" and (optionally) set "detectionObject" to your specific needs and you're done.

The <signal>-element is a little bit more complex. I'll just give you a typical example to start with. If you need more information about specific attributes or details of <signal>, please send a more specific query to the news group. Here's an example for a signal:

```
<signals>
  <signal elemID="21004" pos="0.100" dir="down" type="combined"
function="home" sigSystem="Ks" virtual="false"/>
  <signal elemID="21005" pos="3.100" dir="up" type="combined"
function="blocking" sigSystem="Ks" virtual="false"/>
  <signal elemID="21006" pos="3.100" dir="down" type="combined"
function="blocking" sigSystem="Ks" virtual="false"/>
  <signal elemID="21007" pos="4.100" dir="down" type="distant"
function="blocking" sigSystem="Ks" virtual="false"/>
  <signal elemID="21008" pos="8.900" dir="up" type="distant"
function="home" sigSystem="Ks" virtual="false"/>
  <signal elemID="21009" pos="9.900" dir="up" type="combined"
function="home" sigSystem="Ks" virtual="false"/>
</signals>
```

All signals use the Ks-System ("Kombinationssignal", similar to the swiss N-Signals), which is indicated by 'sigSystem="Ks"'. None of the signals is virtual (virtual signals can belong to shadow stations, for example. Or they represent the start or end signal of a trainroute, where no physical signal exists).

"pos" indicates the relative position along the parent <track>. Most of the signals are combined main and distant signals ('type="combined"'), but two are pure distant signals ('type="distant"'). The attribute "function" defines whether a signal is normal block signal, an entry signal ("home") or an exit signal ("exit").

- > Would you have any document describing the Infrastructure Schema a
- > little more in depth ? Do you have any .xml example where these
- > elements are used ?

Yes and no ;-)

I'm planning for months to make some internal documentations and specifications containing railML-data suitable and available for public, but I didn't manage to really DO that up to now... (shame on me).

But I hope, that this posting will ease your start with railML a little bit. Don't hesitate to ask more questions! ;-)

Best regards from Braunschweig,  
Volker Knollmann

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Subject: Re: Question from T. Graffagnino from SBB  
Posted by [Volker Knollmann](#) on Thu, 05 Oct 2006 07:48:43 GMT  
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On 05.10.2006 09:40, Volker Knollmann wrote:  
> Coordinator RailML-Infrastructure  
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    ^

Uuups, had to much contact with Dresden in the last time, so a little type occured in the footer. To contact me, please dial

Phone: +49 (0) 531 295-3461, Fax: -3402

Sorry for any inconvenience and confusion,  
Volker Knollmann

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Subject: Re: Question from T. Graffagnino from SBB  
Posted by [Daniel Huerlimann](#) on Thu, 05 Oct 2006 10:14:58 GMT  
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Dear group

Again, I am posting of behalf of Thomas Graffagnino from SBB.

Regards

Dani Huerlimann

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Thank you very much for your answer which is very helpfull.

You mentionned the possibility to define the signal system with 'sigSystem="Ks"' for example. I have 2 further question:

- What are the names of the different type of sigSystem which are to be commonly used ?
- We would also have an ETCS L2 "Limit of Movement Authority"; would it be correct to have a main signal with 'sigSystem="ETCSL2"' for that ?

Thank you in advance and best regards, Thomas Graffagnino.

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In article <eg2qdu\$hq1\$1@sifa.ivi.fhg.de>, Volker Knollmann <coord.infrastructure@railml.org> wrote:

- > On 05.10.2006 09:40, Volker Knollmann wrote:
- >> Coordinator RailML-Infrastructure
- >> Phone: +49 (0) 351 295-3461, Fax: -3402
- >           ^ ^ ^ ^
- >
- > Uuups, had to much contact with Dresden in the last time, so a little
- > type occured in the footer. To contact me, please dial
- >
- > Phone: +49 (0) 531 295-3461, Fax: -3402
- >
- > Sorry for any inconvenience and confusion,
- > Volker Knollmann

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Subject: Re: Question from T. Graffagnino from SBB  
Posted by [Volker Knollmann](#) on Thu, 05 Oct 2006 11:03:35 GMT  
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On 05.10.2006 12:14, Thomas Graffagnino wrote:

> - What are the names of the different type of sigSystem which are to  
> be commonly used ?

So far, we did not agree on a list of valid names. "sigSystem", as many other attributes, are not very strongly typed (e. g. using enumerations). This is one of the most important disadvantages of the current schema version, which has to be fixed in future releases.

> - We would also have an ETCS L2 "Limit of Movement Authority"; would  
> it be correct to have a main signal with 'sigSystem="ETCSL2"' for  
> that ?

GOOD question! In fact, Heidrun Jost from Alcatel had a similar question a few days ago during the last railML-Meeting.

I think, the way you mentioned looks fine. We agree on a certain sigSystem-value and model the LOA as signal. Additionally, we should set the "virtual"-flag, since the signal exists only logically, not physically. The advantage of this solution is that (simulation-)software, even if is not aware of ETCS, will handle the LOA more or less correctly as a "real" signal.

The question Heidrun raised refers to the implementation of level transitions. I guess that's an interesting point for SBB as well, because as far as I know the ETCS-lines in Switzerland you use L0 and L2. And strongly related to the modeling of level changes is the topic of mode changes (e.g. from / to "unfitted", "staff responsible", etc).

I suggest to implement level changes either...

.... as track/trackElements/operationModeChanges/operationModeChange with suitable values for "modeExecutive" and "modeLegislative" (suggestions anyone??).

.... or as track/trackTopology/borders/border with an adapted enumeration for the attribute "type".

Personally, I tend to the first possibility, since a level change is more an operational than a topological issue. But I'd like to hear the pros and cons of other group members!

Regarding mode changes I'm not fully convinced whether it makes sense to add them to a railML-file or not. They have a much more "dynamic" character than level borders (e. g. the transition to OS depends on the time and location the driver acknowledge the transition to OS). So I'm in doubt to have such "dynamic" aspects in a "static" infrastructure file.

I'm curious to hear the group's opinion about that!

Best regards,  
Volker Knollmann

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