Subject: Re: Hierarchy of overlaying speed profiles and National vs. Generic speed profiles.
Posted by   on Thu, 06 Sep 2018 15:16:05 GMT
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Dear Torben,

thank you for your work on speed profiles. It is a very important topic also for us.
I would prefer if you could split the long post into several sub-topics because probably not many readers want to follow such long texts.

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> Conditional speed Profiles

> In Norway we have multiple speed profiles that are all NOT continous which overlay.

Yes, we too. We consider this as a 'normal' case.

> Alternatively a new attribute <speedprofile @type="conditional" would indicate that the conditions in the speed profile need to be mapped to the properties in the RS.

Currently I don't see any reason for such a new attribute because from my understanding, all conditions of <speedProfile>s always must fit to the RS. No <speedProfile> is to be used if only one of its conditions does not fit to the RS.

> Direction: use <speedChange @dir>

I agree.

> Axleload: use <speedprofile @maxAxleLoad>

I agree.

> passenger or a freight train:
> Create new sub element <speedprofile/trainCategoryRef @ref> and map in TT:category @trainUsage the trains in TT and/or the formations/vehicles in RS to the TT:category.

I agree. But I would prefer just an attribute <speedprofile @trainCategoryRef> as it already exists with <speedprofile @operatingPeriodRef>.

> loaded or empty train:
> Create new subelement <speedprofile/trainCategoryRef @ref> and map in TT:category @deadrun the trains in TT and/or the formations/vehicles in RS to the TT:category.

I agree. But I would prefer… same as above.

> Further I suggest to move @etcsTrainCategory from <speedChange> to <speedprofile> as this

is a generic

No objection.

> Should there be and additional new attribute <speedprofile @etcsOperationalTrainCategory refering to ANNEX B - list of ETCS operational Train categories in addition to @etcsTrainCategory?

I have no exact opinion but I doubt that this is useful for interoperability because from my opinion, ETCS still is a highly national different phenomenon with much depending on national values. So I cannot imagine an international agreed etcsTrainCategory nor etcsOperationalTrainCategory at the moment. Correct me in case I am wrong.

> I suggest to add the attribute <speedprofile@cantDeficiency for clear definition of the requirements for the speedprofile when not using the ETCS categories (independent if they are written).

Generally, I agree, but I would prefer a more generalised, physical value instead of @cantDeficiency. We have no @cantDeficiency at <speedProfile>.<tilting>, instead we have <speedProfile>.<tilting @maxTiltingAngle> etc. So, we should use a more SI-like (and gauge-independent) attribute like <speedprofile @maxSideAcceleration> or <speedprofile @maxSideForce>.

> I also suggest to move the attribute <speedChange @signalised to <speedprofile @signalised>.

I strongly disagree. We have speedProfiles with mixed signalised and non-signalised speedChanges.

> Alternatively to create a copy <speedprofile @signalised> for a generic approach to the speedprofiles properties instead of each singe speedChange.

No objection. It must be clarified that <speedChange @signalised> overwrites the parent <speedProfile @signalised>.

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> Lenght of a speedprofile
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> To the question how long does the speedprofile extent I would say to the next <speedChange> with the same profile. This either beeing a new @Vmax value of a changed speed value or the "end" value.

No objection. It's the natural approach, I would suppose.

> With the "end" value the profile ends. It is resumed when a new <SpeedChange> with the same profile is present.

I fully agree and think that there was never a different intention.

> So we in Norway suggest to end speed changes for speed profiles that end/are not continous.

I agree.

> Alternative the now suggested meaning of "end" (end last speedChange and resume the SpeedChange before that)…

As you do, I do also not like to see this interpretation. The "end" value was only introduced in r2.2 and it was done to allow a <speedProfile> to be ended finally. (I can prove this by referring to forum posts dealing with the introduction of that value.) It was never intended to resume the previous speed.

In Germany, we have speed profiles for tilting technology. When such a speed profile ends, the train has to resume with the conventional speed of the overlaying conventional (non-tilting) base profile. Of course, the train is not allowed to resume with the speed of the previous curve before the last curve!

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> Choice of overlying speedprofiles / Hierarchy of speed profiles
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The "hierarchy rules" for speed profiles should already be considered by the attribute <speedProfile @influence>. So far, there was no need seen for a further definition.

> 1. Filter the valid speedprofiles present in infrastructure with the valid ones for RS and/or TT.
> a. Check for all speedprofiles present in the current position in the infrastructure.
> b. Check for speedprofiles present in the RS of the formation
> c. Check for speedprofiles present in the TT of the train
> d. Make intersection (Schnittmenge) of IS, RS and TT speedprofiles

I do not agree with your enumeration in detail. In particular, I see no need to make an intersection if you have a <train> referring to <speedProfile>s. The train is only allowed to enumerate exactly the <speedProfile> which apply for it's timetable.

However, we can possibly leave this question to the use case. May be you see a different use case than I do.

> 2. Of these remaining speedprofiles choose the following:

I think your following enumeration is much more difficult than needed but it still may be right.

I would simply say: First find the highest increasing value and then find the lowest decreasing value. (Naturally this implies: If there is no decreasing profile, the highest increasing counts.)

> 6. If no speedprofile with influence="decreasing" and "increasing" is present and there is only one speedprofile with no set @influence then use this.
> 7….

This cannot happen because in my opinion, @influence is not optional.

We assume that there is always at least one "base profile" for each <track>. The base profile is declared @influence='increasing' in railML.

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National vs. Generic speed profiles.

Taking the above mentioned (and in my opinion agreed) "hierarchy rules" for speed profiles, I see no reason why we need to distinguish between national and generic speed profile.

More, I would probably oppose against a <speedProfile @type> enumeration because the question arises: How should that fit into or influence the hierarchy? I think the hierarchy clarifies everything we need.

With best regards,
Dirk.