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Subject: Maximum train current - Proposal for extension of infrastructure scheme in railML 2.4

Posted by [Dr. Thorsten Frenzke](#) on Sun, 28 Jan 2018 22:13:18 GMT

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Dear all,

on some line sections with electric traction system the maximum allowable current and power of a train is limited by the electrification (see also EN 50388).

This may have influence on acceleration, running times and energy consumption, especially of high speed trains and multiple unit formations.

Up to now there is no railML-element or attribute for considering such limitations.

I propose to extend the electrificationChange-element with an optional attribute "maxTrainCurrent".

The maxTrainCurrent shall be expressed in amperes, e.g. unit is 1 A.

Possible values are the typical values under normal conditions (e.g. 600, 900, 1200 for 15 kV systems), none and "other:..".

Sometimes, e.g. in Germany, there are different maximum allowable currents for passenger and freight trains.

There is also a maximum allowable train current per pantograph at standstill.

Maybe it makes sense to add other optional attributes for this.

With best regards,

--

Dr. Thorsten Frenzke

Siemens AG

Mobility Division

MO RS EN PT SD

Werner-von-Siemens-Str. 61

91052 Erlangen, Deutschland

Siemens Aktiengesellschaft: Vorsitzender des Aufsichtsrats: Gerhard Cromme; Vorstand: Joe Kaeser, Vorsitzender; Roland Busch, Lisa Davis, Klaus Helmrich, Janina Kugel, Cedrik Neike, Michael Sen, Ralf P. Thomas; Sitz der Gesellschaft: Berlin und München, Deutschland; Registergericht: Berlin Charlottenburg, HRB 12300, München, HRB 6684; WEEE-Reg.-Nr. DE 23691322

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Subject: Re: Maximum train current - Proposal for extension of infrastructure scheme in railML 2.4

Posted by [christian.rahmig](#) on Mon, 29 Jan 2018 09:34:14 GMT

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Dear Mr. Frenzke,

thank you for bringing up the topic of maximum train currents that I would like to comment on from railML.org side:

Am 28.01.2018 um 23:13 schrieb Dr. Thorsten Frenzke:

- > Dear all,
- >
- > on some line sections with electric traction system the maximum
- > allowable current and power of a train is limited by the electrification
- > (see also EN 50388).
- > This may have influence on acceleration, running times and energy
- > consumption, especially of high speed trains and multiple unit formations.
- >
- > Up to now there is no railML-element or attribute for considering such
- > limitations.

That is correct for railML 2.x. In railML 3.1 beta that had been released on October 31, 2018, a first version of the maximum train current topic has already been implemented.

An example based on this implementation in the infrastructure scheme looks like this:

```
<electrification>  
  <energyCatenary maxPantoCurrentStandstill="800"  
maxTrainCurrentDriving="3000"/>  
</electrification>
```

The values are given in Amperes [A].

- > Sometimes, e.g. in Germany, there are different maximum allowable
- > currents for passenger and freight trains.

In order to allow for train category specific maximum train currents, a modification of the schema has been discussed. The adapted example would look like this:

```
<electrification>  
  <energyCatenary maxPantoCurrentStandstill="800">  
    <maxTrainCurrentDriving maxCurrent="3000" trainType="passenger"/>  
    <maxTrainCurrentDriving maxCurrent="1200" trainType="freight"/>  
  </energyCatenary>  
</electrification>
```

> Maybe it makes sense to add other optional attributes for this.

I would like to direct this question to the infrastructure managers and electrification experts:

Are there any further parameters that are relevant for the maximum train current? Any feedback is appreciated...

Best regards  
Christian

--

Christian Rahmig - Infrastructure scheme coordinator  
railML.org (Registry of Associations: VR 5750)  
Phone Coordinator: +49 173 2714509; railML.org: +49 351 47582911  
Altplauen 19h; 01187 Dresden; Germany [www.railml.org](http://www.railml.org)

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Subject: Re: Maximum train current - Proposal for extension of infrastructure scheme in railML 2.4

Posted by [christian.rahmig](#) on Mon, 29 Jan 2018 10:14:12 GMT

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Dear all,

I created a Trac ticket for the specific issue. It is available in [1].

[1] <https://trac.railml.org/ticket/319>

Best regards  
Christian

Am 29.01.2018 um 10:34 schrieb Christian Rahmig:

> Dear Mr. Frenzke,

>

> thank you for bringing up the topic of maximum train currents that I  
> would like to comment on from railML.org side:

>

> Am 28.01.2018 um 23:13 schrieb Dr. Thorsten Frenzke:

>> Dear all,

>>

>> on some line sections with electric traction system the maximum  
>> allowable current and power of a train is limited by the electrification  
>> (see also EN 50388).

>> This may have influence on acceleration, running times and energy  
>> consumption, especially of high speed trains and multiple unit  
>> formations.

>>

>> Up to now there is no railML-element or attribute for considering such  
>> limitations.  
>  
> That is correct for railML 2.x. In railML 3.1 beta that had been  
> released on October 31, 2018, a first version of the maximum train  
> current topic has already been implemented.  
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> current? Any feedback is appreciated...  
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> Best regards  
> Christian  
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--

Christian Rahmig - Infrastructure scheme coordinator  
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Subject: Re: Maximum train current - Proposal for extension of infrastructure scheme in railML 2.4

Posted by [Gerben Schut](#) on Wed, 31 Jan 2018 14:13:24 GMT

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Dear All,

I will search for the Dutch requirements for this subject, as I was asked by the RailML organization.

Regards,

Gerben Schut

ProRail, Netherlands

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