Subject: Defining data group "leadingVehicle"
Posted by Carsten Weber on Fri, 03 Sep 2010 12:29:28 GMT
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Dear RailML-Users,

to define vehicles some informations need to be filled in only for leading vehicles.
So at the moment some data is grouped in monitoring as a child of engine data.
It would be useful to create a new element "leadingVehicle" at the same level like wagon, engine and classification.
So the information of driversCab, etcs, nationalSystem, trainRadio, otherEquipment and the accousticSignaller could be arranged there.

```
<!--
           -->
<!--   +-
         -->
<!--   +-
    -->
<!--   +-
           -->
<!--   +-
         -->
<!--   +-
           -->
<!--   +- acousticSignaller            -->
<!---->
<xs:complexType name="eLeadingVehicle">
 <xs:complexContent>
  <xs:extension base="rail:tMonitoring">
   <xs:sequence>
    <xs:element name="driversCab" type="rail:tDriversCabType" minOccurs="0"
maxOccurs="unbounded">
     <xs:annotation>
      <xs:documentation>data about each drivers cab of the
vehicle</xs:documentation>
     </xs:annotation>
    </xs:element>
    <xs:element name="etcs" type="rail:eETCS" minOccurs="0">
     <xs:annotation>
      <xs:documentation>capabilities with respect to European Train Control
System</xs:documentation>
     </xs:annotation>
    </xs:element>
    <xs:element name="nationalSystem" type="rail:tNationalSystem"
minOccurs="0" maxOccurs="unbounded">
```

```
     <xs:annotation>
      <xs:documentation>list of installed national train protection/control
systems</xs:documentation>
     </xs:annotation>
    </xs:element>
    <xs:element name="trainRadio" type="rail:eTrainRadio" minOccurs="0"
maxOccurs="unbounded">
     <xs:annotation>
      <xs:documentation>list of installed train radio systems for
communication</xs:documentation>
     </xs:annotation>
    </xs:element>
    <xs:element name="otherEquipment" type="rail:tOtherEquipment"
minOccurs="0" maxOccurs="unbounded">
     <xs:annotation>
      <xs:documentation>list of other (non-safety) installed train
equipment</xs:documentation>
     </xs:annotation>
    </xs:element>
    <xs:element name="acousticSignaller" type="rail:tAcousticSignaller"
minOccurs="0" maxOccurs="unbounded">
     <xs:annotation>
      <xs:documentation>data about each drivers cab of the
vehicle</xs:documentation>
     </xs:annotation>
    </xs:element>
   </xs:sequence>
  </xs:extension>
 </xs:complexContent>
</xs:complexType>
```

The data of brakes should be moved to the wagon and the data of loadLimitMatrix would be helpful in wagon -> goods.

Informations about driven rack systems should also be positioned a the end of ePropulsion in rollingstock.xsd

```
<xs:element name="rackTraction" type="rail:tRackTractionType" minOccurs="0">
 <xs:annotation>
  <xs:documentation>data about rack traction equipment of the
vehicle</xs:documentation>
 </xs:annotation>
</xs:element>
```

There the type has to be defined in rollingstockTypes.xsd as seen to be seen below:

```
< !--******************************************************** -- >
<!-- rackTraction -->
```

```
< !--************************************************************ -- >
<xs:complexType name="tRackTractionType">
 <xs:annotation>
  <xs:documentation>description of any installed rack traction
equipment</xs:documentation>
 </xs:annotation>
 <xs:attributeGroup ref="rail:aRackTraction"/>
</xs:complexType>
<xs:attributeGroup name="aRackTraction">
 <xs:attribute name="number" type="rail:tCounter" use="optional">
  <xs:annotation>
   <xs:documentation>number of cog wheels on the vehicle</xs:documentation>
  </xs:annotation>
 </xs:attribute>
 <xs:attribute name="rackSystem" type="rail:tRackSystemType" use="required">
  <xs:annotation>
   <xs:documentation>kind of rack system used</xs:documentation>
  </xs:annotation>
 </xs:attribute>
 <xs:attribute name="resilentCogWheel" type="xs:boolean" use="optional">
  <xs:annotation>
   <xs:documentation>flag, wheter the cog wheel(s) is(are) resilently
suspended</xs:documentation>
  </xs:annotation>
 </xs:attribute>
</xs:attributeGroup>
```

Also a new type for coupling should be defined in rollingstock.xsd:

```
<xs:element name="coupling" type="rail:tCoupling" minOccurs="0"
maxOccurs="unbounded">
 <xs:annotation>
  <xs:documentation>data about couplings of the vehicle</xs:documentation>
 </xs:annotation>
</xs:element>
```

That means an addition of rollingstockTypes.xsd as follows:

```
< !--************************************************************ -- >
<!-- Coupler -->
< !--************************************************************ -- >
<xs:complexType name="tCoupling">
 <xs:annotation>
  <xs:documentation>container for descriptive data of the vehicle
coupling</xs:documentation>
 </xs:annotation>
 <xs:attributeGroup ref="rail:aCoupling"/>
</xs:complexType>
```

```
<xs:attributeGroup name="aCoupling">
 <xs:attribute name="couplingName" type="rail:tGenericName" use="required">
  <xs:annotation>
   <xs:documentation>name of coupling</xs:documentation>
  </xs:annotation>
 </xs:attribute>
 <xs:attribute name="couplingHeight" type="rail:tLengthMM" use="optional">
  <xs:annotation>
   <xs:documentation>coupling level above top of rail</xs:documentation>
  </xs:annotation>
 </xs:attribute>
 <xs:attribute name="pullingForce" type="rail:tForceNewton" use="optional">
  <xs:annotation>
   <xs:documentation>maximum force to be used for pulling vehicles with this
type of coupling</xs:documentation>
  </xs:annotation>
 </xs:attribute>
 <xs:attribute name="pushingForce" type="rail:tForceNewton" use="optional">
  <xs:annotation>
   <xs:documentation>maximum force to be used for pushing vehicles with this
type of coupling</xs:documentation>
  </xs:annotation>
 </xs:attribute>
</xs:attributeGroup>

The attributeGroup aVehicle should get additional entries for
"lineClassification" and a state of the vehicle data
(rollingstockTypes.xsd).
This state should give the data user a hint to the validity of the vehicle
data.
  <xs:attribute name="lineClassification"
type="rail:tLineClassificationType">
   <xs:annotation>
    <xs:documentation>defined line classification for this
vehicle</xs:documentation>
   </xs:annotation>
  </xs:attribute>
  <xs:attribute name="state" type="rail:tVehicleState">
   <xs:annotation>
    <xs:documentation>usability of the vehicle</xs:documentation>
   </xs:annotation>
  </xs:attribute>

 < !--******************************************************* -- >
 <!-- VehicleState -->
 < !--******************************************************* -- >
 <xs:simpleType name="tVehicleState">
  <xs:union>
```

```
   <xs:simpleType>
    <xs:restriction base="xs:string">
     <xs:enumeration value="theoreticalModell"/>
     <xs:enumeration value="feasibilityStudy"/>
     <xs:enumeration value="manufactorOfferOrInOperation"/>
     <xs:enumeration value="rightOfContinuance"/>
    </xs:restriction>
   </xs:simpleType>
  </xs:union>
 </xs:simpleType>
```

Every propulsion system should have a name (at the beginning) to handle it easier (rollingstockTypes.xsd).

```
  <xs:attribute name="name" type="rail:tGenericName" use="optional">
   <xs:annotation>
    <xs:documentation>short name of this type of
propulsion</xs:documentation>
   </xs:annotation>
  </xs:attribute>pleType>
```

Also an information about the activation of the propulsion system should be defined there (rollingstockTypes.xsd):

```
  <xs:attribute name="activationStandstill" type="xs:boolean">
   <xs:annotation>
    <xs:documentation>propulsion system can be activated only in
standstill</xs:documentation>
   </xs:annotation>
  </xs:attribute>
```

The attribute named gearRatio as child element of tGear (rollingstockTypes.xsd) should be used "optional".

In addition to the rotationMassFactor (aWagon in rollingstockTypes.xsd) an "additonalRotationMass" should be available as tWeightTons:

```
  <xs:attribute name="additionalRotationMass" type="rail:tWeightTons">
   <xs:annotation>
    <xs:documentation>additional mass for increased running resistance by
rotating masses of non-motored axles</xs:documentation>
   </xs:annotation>
  </xs:attribute>
```

I miss the bearingType in the attributeGroup "aWagon". Maybe it could be added at the end of the attribute group as follows:

```
  <xs:attribute name="bearingType" type="rail:tBearingType">
   <xs:annotation>
```

```
    <xs:documentation>describes the type of the bearing used for calculating
vehicle resistance</xs:documentation>
   </xs:annotation>
  </xs:attribute>
```
And the enumeration tBearingType as follows:

```
 < !--******************************************************* -- >
 <!-- bearingType -->
 < !--******************************************************* -- >
 <xs:simpleType name="tBearingType">
  <xs:union>
   <xs:simpleType>
    <xs:restriction base="xs:string">
     <xs:enumeration value="rollerBearing"/>
     <xs:enumeration value="plainBearing"/>
    </xs:restriction>
   </xs:simpleType>
   <xs:simpleType>
    <xs:restriction base="rail:tOtherEnumerationValue"/>
   </xs:simpleType>
  </xs:union>
 </xs:simpleType>
```

In ePassenger it should be possible to define more than one Gangway.

The attribute position inside the attributeGroup aGangway should be used as optional.

It would also be helpful to define the geometric size of the gangway inside of this attribute group. Here is an idea:

```
  <xs:attribute name="floorLevel" type="rail:tLengthMM" use="optional">
   <xs:annotation>
    <xs:documentation>height of gangways floor above top of
rail</xs:documentation>
   </xs:annotation>
  </xs:attribute>
  <xs:attribute name="gangwayHeight" type="rail:tLengthMM" use="optional">
   <xs:annotation>
    <xs:documentation>height of gangway for passenger use</xs:documentation>
   </xs:annotation>
  </xs:attribute>
  <xs:attribute name="gangwayWidth" type="rail:tLengthMM" use="optional">
   <xs:annotation>
    <xs:documentation>width of gangway for passenger use</xs:documentation>
   </xs:annotation>
  </xs:attribute>
```

The enumeration tGangwayDesignType should get an extension by "sigI" and "sigII".

The type tTilting should be defined as follows:

```
 < !--******************************************************** -- >
 <!-- Tilting -->
 < !--******************************************************** -- >
 <xs:complexType name="tTilting">
  <xs:annotation>
   <xs:documentation>data for tilting mechanism of passenger
cars</xs:documentation>
  </xs:annotation>
  <xs:attributeGroup ref="rail:aTilting"/>
 </xs:complexType>
 <xs:attributeGroup name="aTilting">
  <!-- Carsten -->
  <xs:attribute name="actuation" type="rail:tTiltingActuationType"
use="required">
   <xs:annotation>
    <xs:documentation>way of actuating the carbody tilting
(active/passive)</xs:documentation>
   </xs:annotation>
  </xs:attribute>
  <xs:attribute name="maxTiltingAngle" type="rail:tAngleDegQuadrant">
   <xs:annotation>
    <xs:documentation>maximum tilting angle in degrees</xs:documentation>
   </xs:annotation>
  </xs:attribute>
  <!-- /Carsten -->
  <xs:attribute name="tiltingSpeed" type="rail:tSpeedDegreesPerSecond">
   <xs:annotation>
    <xs:documentation>speed of changing the tilting angle in degrees per
second</xs:documentation>
   </xs:annotation>
  </xs:attribute>
 </xs:attributeGroup>
```

I also added an attribute "loadArea" above the volume inside of the attributeGroup "aGoods".

I hope it is not too much for one post.

Thanks.

Carsten.

Subject: Re: Defining data group "leadingVehicle"
Posted by Joerg von Lingen on Sun, 12 Sep 2010 14:12:26 GMT
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On 03.09.2010 14:29, Carsten Weber wrote:
> Dear RailML-Users,
>
> to define vehicles some informations need to be filled in only for leading
> vehicles.
> So at the moment some data is grouped in monitoring as a child of engine
> data.
> It would be useful to create a new element "leadingVehicle" at the same
> level like wagon, engine and classification.
> So the information of driversCab, etcs, nationalSystem, trainRadio,
> otherEquipment and the accousticSignaller could be arranged there.
>

There are quite some situations taking advantage of the proposed new substructure "leadingVehicle". However, it violates the principles of data hierarchy used in rolling stock data.

It is the intention to provide a data structure for the technical data and characteristics of any rolling stock independent of the particular use case of a train running in the network. "leadingVehicle" is an expression of such a particular use case as a vehicle becomes a leading one only on a particular train configuration.

The original idea of "engine" was put in all data of the active parts (propulsion etc) one would find in any loco. The child "monitoring" is, however, morphodite being in locos and non-driven cars with drivers cab.

The "wagon" shall take all data related to the interior and its equipment, which is not related to the propulsion.

The question is whether such a radical structure change is really useful?
--
Mit freundlichen Grüßen/Best regards,

Jörg von Lingen

Subject: Re: Defining data group "leadingVehicle"
Posted by Carsten Weber on Tue, 28 Sep 2010 08:11:39 GMT
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"Joerg von Lingen" <joerg.von_lingen.dd@t-online.de> schrieb im Newsbeitrag news:i6i65j$5qi$1@sifa.ivi.fhg.de...
> On 03.09.2010 14:29, Carsten Weber wrote:

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> hierarchy used in rolling stock data.
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> characteristics of any rolling stock independent of the particular use
> case of a
> train running in the network. "leadingVehicle" is an expression of such a
> particular use case as a vehicle becomes a leading one only on a
> particular
> train configuration.
>
I think there is a missunderstanding. The data group "leadingVehicle" should include all the data which is relevant when the vehicle is used as a leading vehicle. It is of course not possible to define in the vehilce data, that this vehicle is a leading vehicle in the current formation of the train.
This is not the intention to define the "leadingVehicle" data group.

Best regards.

Carsten

Subject: Re: Defining data group "leadingVehicle"
Posted by Joerg von Lingen on Fri, 22 Oct 2010 06:03:05 GMT
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With respect to the proposed restructuring two potential variants were presented on RailML meeting
on 19. October 2010. Refer
http://www.railml.org/web/index.php/veranstaltungsarchiv.htm
l?file=tl_files/railML.org/documents/events/slides/2010-10-1 9_ifb_lingen-rollingstock.pdf

This shall be part of a future version 3.0 of the schema. Please review the proposals and provide any feedback. Thanks.

Carsten Weber wrote:
> Dear RailML-Users,
>
> to define vehicles some informations need to be filled in only for leading
> vehicles.
> So at the moment some data is grouped in monitoring as a child of engine
> data.
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>
--
Mit freundlichen Grüßen/Best regards,

Jörg von Lingen

Subject: Re: Defining data group "leadingVehicle"
Posted by Carsten Weber on Fri, 22 Oct 2010 09:12:09 GMT
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Dear RailML-Users,

I would prefer the first proposal.
The second proposal assumes a drivers cab as a requirement for a leading vehicle.
There are cases, where leading vehicles do not have a drivers cab.
You can see an example at
http://www-users.rwth-aachen.de/christoph.schmitz2/signale/s ignale_rwe.html
(german only).
But there are also other examples like fully automated underground trains.

In both cases I would like to rename "otherEquipment" to "deadManControl" or adding "deadManControl" and keeping "otherEquipment" free for other cases like "EBuLa".

Best regards.

Carsten Weber

Subject: Re: Defining data group "leadingVehicle"
Posted by Joerg von Lingen on Wed, 03 Nov 2010 08:15:17 GMT
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Carsten Weber wrote:
> There are cases, where leading vehicles do not have a drivers cab.
> You can see an example at
> http://www-users.rwth-aachen.de/christoph.schmitz2/signale/s ignale_rwe.html
> (german only).
> But there are also other examples like fully automated underground trains.

Just two comments:
1) First scenario with pushed mining trains - no cab on leading vehicle but also no ATP equipment or
so, just an ordinary freight car with battery head lights

2) Second scenario with automated underground trains - at least most of such vehicles have an auxiliary drivers position instead for shunting purpose

--
Mit freundlichen Grüßen/Best regards,

Jörg von Lingen