# TCR WEBTOOL V3.0 MESSAGES' SPECIFICATION

Version 1.2 – 10.12.2024

# Contents

# 1 Introduction

The Temporary Capacity Restrictions (TCRs) are necessary to keep the infrastructure and its equipment in good condition (maintenance) and to allow infrastructure development following market needs. TCRs refer to restrictions of the capacity of railway lines, for reasons such as infrastructure works, including associated speed restrictions, axle load, train length, traction, or structure gauge.

The TCRs represent negative capacity on the network, and they are a capacity reduced factors that, if badly coordinated, decrease the stability and therefore the quality of timetables. TCRs should be known in advance (even up to 36 months) and well planned to provide high-quality path offers. It is important to coordinate these TCRs at the international level, include Applicants in the process, and communicate unavailable capacity accordingly. Currently, the communication between the national TCR systems (IMs, RUs) and RNE central TCR tool is not possible because of the lack of the technical interface and TAF/TAP message structures for data exchange. Data should be updating more frequently (nearly to daily basis) and because of that technical interfaces for communication between central TCR tool and national TCRs systems are important.

In the existing TAF/TAP TSI schema, the messages to manage TCRs do not exist. Therefore, new messages were defined, and their structure was explained at the Sector Management Office (SMO) and Joint Sector Group (JSG) meetings. The TCR messages were approved at both meetings and shall be implemented into the TAF/TAP TSI schema.

# 2 Scope

Document covers data exchange between the national and central TCR Tool, using the TAF/TAP TSI based messages. Implementation of the messages is important to avoid double data entry, nationally and internationally, and additional data work during data import.

Some examples are prepared in the document for the clarification of the elements. The XML sample data is provided as a separate file. In the annex B, a general structure of the XML is provided.

# 3 TCR master data management

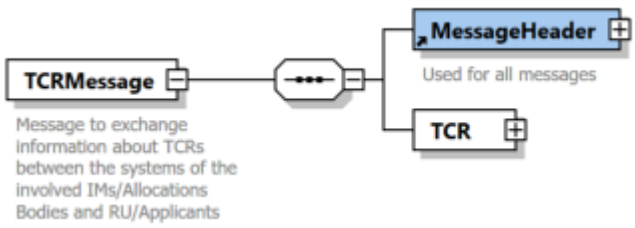
The TCRs can be imported into TCR tool on two different ways: via Excel file or via XML file, what is already explained in chapter 1.4.

Additionally, import via XML file can be done via manual XML import file (like excel import) or via a web-service. The XML structure will be validated on upload, and an appropriate status report is displayed. In addition, the import routine will validate if the user is authorised to create a new TCR (factoring in the provided transactional data) and if there are consistency issues with related master data. The import stores only data in the TCR tool, if no validation or consistency errors occur. In case of errors, the TCR tool responds with a detailed error report.

Descriptions of the excel and xml file structure (interface) are below.

# 4 TCR Message

The TCR import message shall be used by IMs to import TCRs from their national tool into the TCR tool. The same message shall be used to update already created/imported TCRs. This is the message that will be used mostly. The structure of the message is the following:

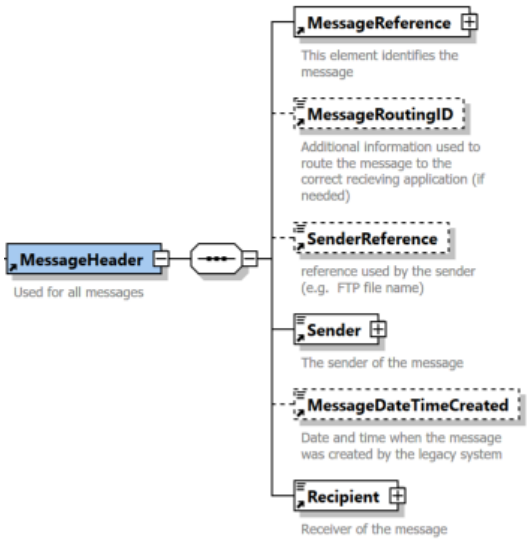



```
<xs:element name="TCRMessage">
  <xs:annotation>
    <xs:documentation>Message to exchange information about TCRs between the sys-
tems of the involved IMs/Allocation Bodies and RU/Applicants</xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="MessageHeader"/>
      <!-- IM responsible for the TCR -->
```

```
        <xs:element name="TCR" type="TCRType"/>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
```

**MessageHeader element**

This element is a standard element that is used in all messages to identify the message itself (MessageReference), to give information about the sender (Sender) and the recipient (Recipient) and to give some additional information like refence used by sender (SenderReference) and routing of the message to the correct application (MessageRoutingID).




The information that will be provided in the “MessageReference” should be one of the values below, depends on the message that is sending:

**6500** TCRMessage

**6501** TCRResponseMessage

**6502** TCRCanceledMessage

The message will be sent to the RNE, that means that Recipient is **3178**, what is UIC of the RNE.

An example of the message header implementation in the XML:

*<Example>*

*<MessageHeader>*

*<MessageReference>*

*<MessageType>**6500**</MessageType>*

*<MessageTypeVersion>**2.2.2**</MessageTypeVersion>*

*<MessageIdentifier>**UUID** given by Common Interface</MessageIdentifier>*

*<MessageDateTime>**2020-04-05T09:30:47Z**<MessageDateTime>*

*<MessageReference>*

*<Sender>**0080**</Sender>*

*<Recipient>**3178**</Recipient>*

*<MessageHeader>*

*</Example>*

## TCR element

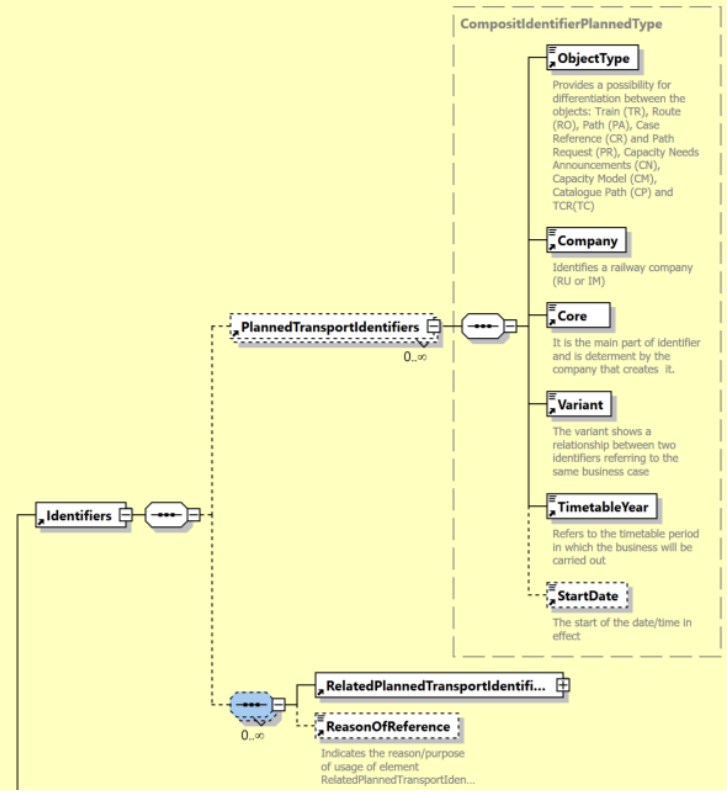
The TCR element is the most important element of this message. This element is of type of "**TCRType**" and it contains all the necessary information that describes the TCR object itself.

```
<xs:complexType name="TCRType">
  <xs:sequence>
        <xs:element ref=”Identifiers”/>
        <xs:element ref="CoordinatingIM” minOccurs=”0”/>
        <xs:element ref="AdministrativeContactInformation”/>
        <xs:element ref="ReasonForRestriction"/>
        <xs:element name="Description" type="xs:string" minOccurs="0" />
```

```
        <xs:element ref="StartLocation" />
        <xs:element ref="EndLocation" />
        <xs:element name="Sections" type="SectionsType" minOccurs="0" />
        <xs:element ref="TCRDirection"/>
        <xs:element name="AffectedBorders" type="AffectedBordersType" minOccurs="0" />
        <xs:element name="AffectedIMs" type="AffectedIMsType" minOccurs="0" />
        <xs:element name="InvolvedICEs" type="InvolvedICEsType" minOccurs="0" />
        <xs:element name="TemporalExpansion" type="TemporalExpansionType" />
        <xs:element name="OperationalConsequenes" type="OperationalConsequencesType"/>
        <xs:element name="ProjectID" type="xs:string" minOccurs="0"/>
        <xs:element ref="TCRStatus"/>
        <xs:element name="LastUpdated" type="xs:dateTime"/>
  </xs:sequence>
</xs:complexType>
```

**Identifiers element**

The “Identifiers” element is a global element used in other TAF TSI messages. For the TCR data exchange, this element is mandatory, and it identifies the TCR that is being sent by message. Only one TCR per message will be sent. Using this element, IM will uniquely identify its TCR, and the Core element value could be the same as it is in national tool to easier data connection.




The "**PlannedTransportIdentifiers**" element is the unique identifier of the TCR object. This element is a type of "CompositeIdentifierPlannedType" with the following information:

- ***ObjectType*** – provides a possibility for differentiation among the objects, which is the case of TCR object value "**TC**" (defines TCR object), and it is mandatory
- ***CompanyCode*** – mandatory numeric value (4 digits) in range 0000 to 9999 that identifies the RU, IM or other company involved in the Rail Transport Chain
- ***Core*** – is the main part of the identifier and is determent by the company that creates it. It is a mandatory 12 characters alphanumeric string value. The value provided here is the identifier value from the national tool.
- ***Variant*** – shows a relationship between two identifiers referring to the same business case. It is a mandatory 2 characters alphanumeric string value.
- ***TimetableYear*** – refers to the timetable period in which the business will be carried out. It is a mandatory numeric value (4 digits) in range 2012 to 2097.
- ***StartDate*** – it is an optional date value that represents the start of the date in effect. This element is not used for the TCR data exchange.

***Example***

In the case that the DB Netz sends TCR with the ID=12345, the Identifier should look like as follows (the “StartDate” value is not included):

***TC – 0080 – 000000012345 – 00 – 2022***

An example of implementation in the XML:

```
<xs:TCRID>
    <xs:ObjectType>TC</xs:ObjectType>
    <xs:Company>0080</xs:Company>
    <xs:Core>000000012345</xs:Core>
    <xs:Variant>00</xs:Variant>
    <xs:TimetableYear>2020</xs:TimetableYear>
    <xs:StartDate>2019-12-08</xs:StartDate>
</xs:TCRID>
```

The “RelatedPlannedTransportIdentifiers” section contains elements to identify other objects that are related to the TCR in the message itself.

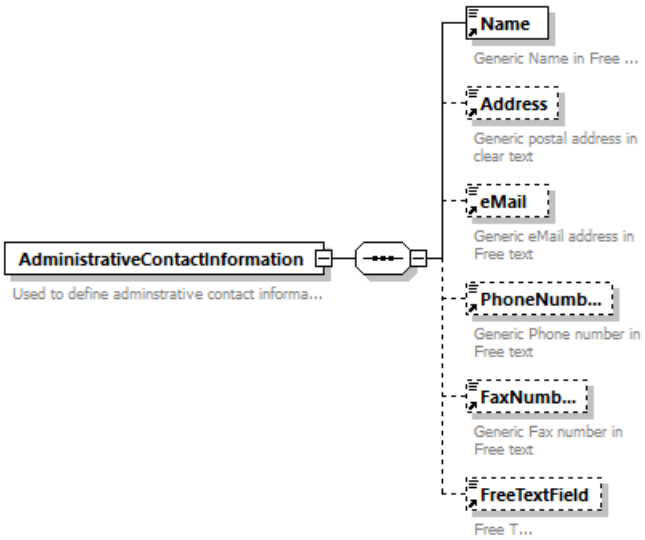
Implementation of this element is not supported by the TCR Tool yet.

**CoordinatingIM element**

This element is used to define which IM is responsible for the TCR and coordinates the process between IMs. It is important specially in the countries with more than one IM, where IMs are able to create TCRs for each other (e.g., in Switzerland). The value that should be entered is the company code of the responsible IM. This element is optional.

**AdministrativeContactInformation element**

The Administrative contact information element is used to give information which person inside the IM company, that created TCR, is responsible for managing the TCR. Initially, it will be a person who is TCR manager in the company or TCR manager for the specific region inside the country. Only the “Name” (name and surname of the person) element is mandatory.




**ReasonForRestriction element**

The “ReasonForRestriction” element gives an indication about the works regarding the TCR. This element is mandatory, and the following values are defined and can be used:

- **10** - Signal
- **20** - Switch
- **30** - Catenary
- **40** - Track/Rail
- **50** - Tunnel
- **60** - Bridge
- **70** - Miscellaneous
- **80** - Maintenance
- **90** - Other

```
<xs:element name="ReasonForRestriction">
  <xs:simpleType>
    <xs:restriction base="xs:token">
      <xs:enumeration value="10"/>
      <xs:enumeration value="20"/>
      <xs:enumeration value="30"/>
      <xs:enumeration value="40"/>
      <xs:enumeration value="50"/>
      <xs:enumeration value="60"/>
      <xs:enumeration value="70"/>
      <xs:enumeration value="80"/>
      <xs:enumeration value="90"/>
    </xs:restriction>
  </xs:simpleType>
</xs:element>
```

**Desription element**

The “Description” element is used to give a brief description of the TCR. This is an optional element and type of this element is “xs:string”.

**StartLocation and EndLocation elements**

The “StartLocation” defines the beginning while the “EndLocation” defines the end location of the TCR. Both fields are mandatory and only locations associated with the country of the issuing IM are allowed. The location is described with the Country Code (CountryCodeISO) and Location Primary Code.

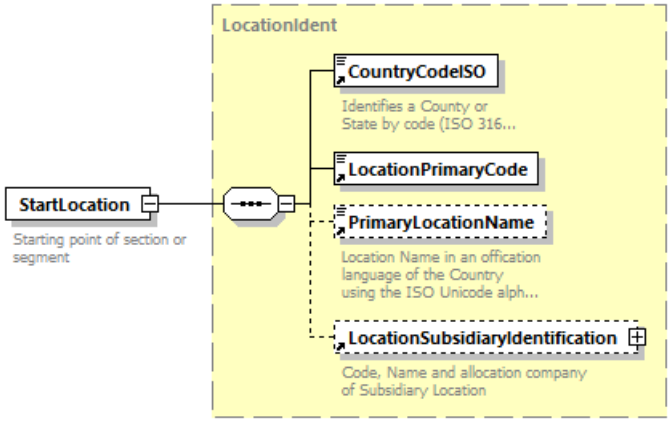
*<Example>*

*<CountryCodeISO>**AT**</CountryCodeISO>*

*<LocationPrimaryCode>**1003**</LocationPrimaryCode>*

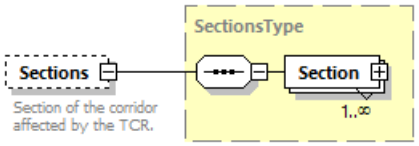
*<PrimaryLocationName>**Wien Hbf**</PrimaryLocationName>*

*</Example>*




**Sections element**

The “Sections” structure to be used to provide information about the sections of the corridor that are affected by the TCR. It contains the “Section” element, that shall be used to provide information about one or more sections. This structure is optional. The value provided must match the section which is computed from the elements “Location from” and “Location to”.




With the “Section” element IM can define in detail which sections or segments are affected by TCR. If a TCR is established on a longer route, each section should be clearly defined to ensure there is no ambiguity about which specific route is affected by the TCR.

**TCRDirection element**

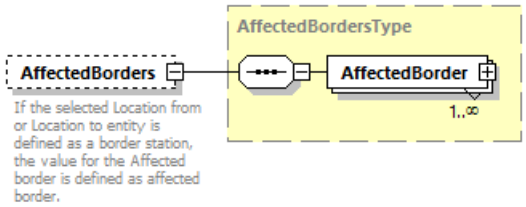
The “TCRDirection” element is mandatory and defines which direction of the section is affected by the TCR (bi-directional, a direction towards starting point of the location or direction towards ending point of the location). The values that can be used are the following:

- 10 – Both direction
- 20 – End to start

- 30 – Start to end

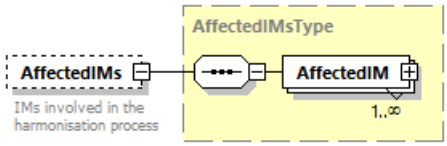
**AffectedBorders element**

The “AffectedBorders” is an optional element used to define the location that is a border, in case that TCR touches or is define in this location. That means if the selected “Location from” or “Location to” entity is defined as a border station; this value should be provided with the affected border element as well. The values that should be entered are the same as for “StartLocation” or “EndLocation”, and one or more border locations could be sent.



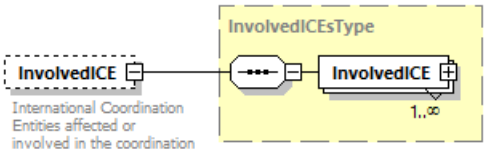

**AffectedIMs element**

The “AffectedIMs” is an optional element used to involve the neighbouring IMs, that are affected by the TCR, in the harmonisation process. One or more IMs – “CompanyCode” values could be provided.



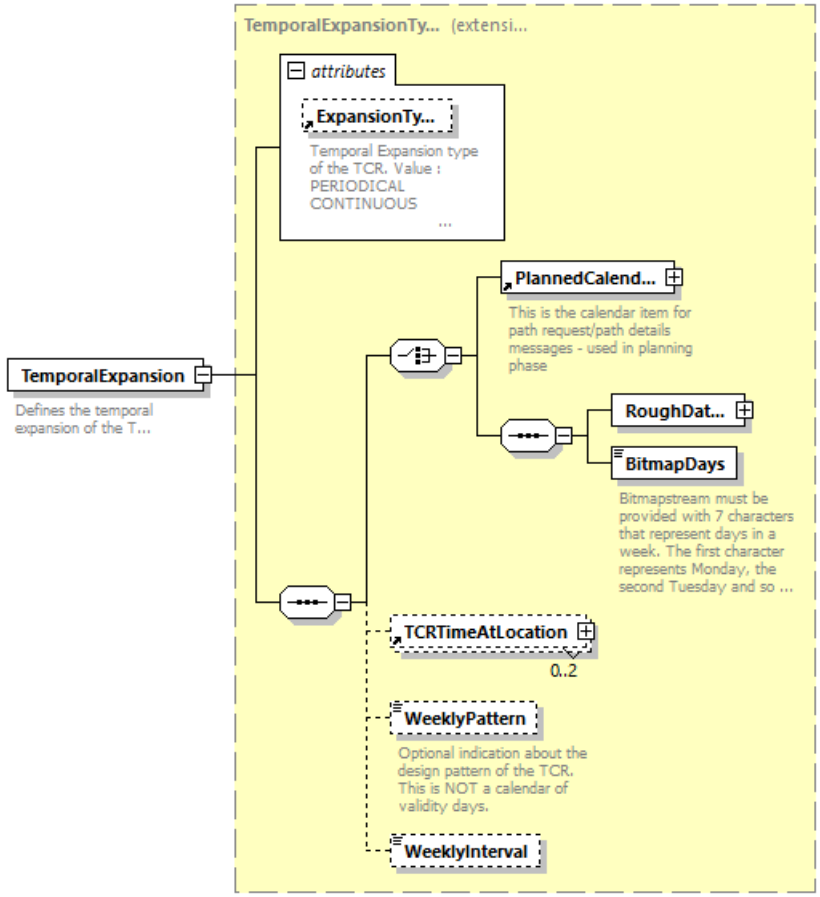

**InvolvedICEs element**

The “InvolvedICEs” is an optional field used to define the International Coordination Entity (ICE) that is affected or should be involved in the TCR coordination. One or more involved ICE names could be provided.


InvolvedICEsType
InvolvedICE
InvolvedICE
1..∞
International Coordination Entities affected or involved in the coordination

## Temporal expansion

The “TemporalExpansion” is a mandatory element, and it is used to define a date and time of the TCR, and also temporal expansion type and duration of the TCR.




When defining the “TemporalExpansion”, the attribute that defines the expansion type of the TCR **must** be chosen. There are two possibilities:

- **Periodical** - The characteristic of this event is described with a repeating pattern (e.g. work activities happen each Saturday and Sunday from 02:00 to 04:15). For periodical works, specific working days can be selected with checkboxes, where each checkbox represents the beginning day of each work. In the case of the given example with works on Saturday and Sunday from 02:00 to 04:15, the checkboxes Sat and Sun needs to be ticked (not Sat, Sun and Mon). A help-text (tooltip) is displayed when hovering over the label for working days and giving a brief description of the logic behind the temporal expansion of the TCR.

- **Continuous** - These events are characterized in a way that they occur non-stop during the TCR (e.g. a complete closure of a track from 01.07.2017 to 01.09.2017).

Each TCR is defined by its validity period, by defining the start and end date. The validity period of TCR can be defined with the exact dates and times if it is known or rough dates if it is unknown.

If the precise dates and times of the TCR are known, the validity period should be defined using the "Planned Calendar" element. This includes specifying the exact start and end dates, which mark the beginning and conclusion of the TCR. Within this defined period, daily occurrences can be detailed using the "BitmapDays" element.

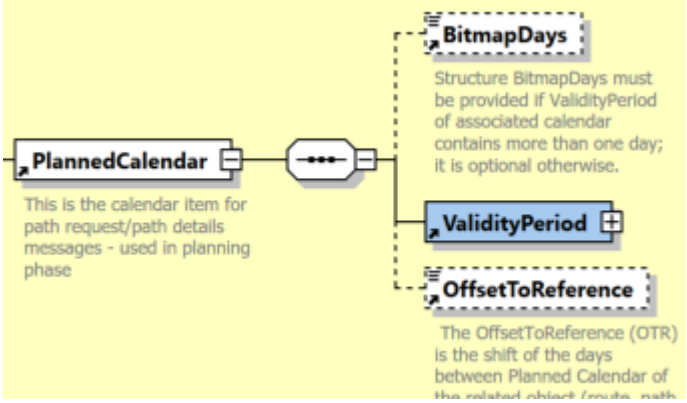
OffsetToReference element is not relevant for the TCR data exchange.

The "Weekly Pattern" element is used to indicate the specific days when TCRs occur, starting with Monday as the first day. This is particularly important for recurring TCRs, as it establishes the day pattern for these events.

Additionally, the weekly occurrence of the TCR can be specified using the "Weekly Interval" element. This allows you to indicate, for example, that TCRs will occur every second week (2), every third week (3), and so on.

Both, “Weekly Pattern” and “Weekly Interval” elements can be used in combination with the PlannedCalendar if the sender of the message does not support the calendar with the BitmapDays format and can therefore not include in the message.

The structure of the “**PlannedCalendar**” is chosen when the exact time of the TCR is known and its structure is as follows:



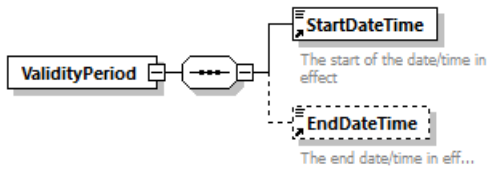
```
<xs:element name="PlannedCalendar">
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="BitmapDays" minOccurs="0"/>
      <xs:element ref="ValidityPeriod"/>
      <xs:element ref="OffsetToReference" minOccurs="0"/>
    </xs:sequence>
  </xs:complexType>
</xs:element>
```

For the “Continuous” TCRs, the “**BitmapDays**” element will not be used, but for the “Periodical” TCRs is mandatory and it will present a weekly pattern. The weekly pattern means that 7 characters (working days), that represents days in a week, will be allocated and value is set to 1 on days on which TCR occurs. The first character represents Monday, the second Tuesday, and so on.

That means, for the periodical TCRs that occur every weekend from Friday to Sunday, the BitmapDays value looks as follows:

<BitmapDays>**0000111**</BitmapDays>

The “**ValidityPeriod**” element is mandatory and defines the start and end validity of the TCRs. With these elements the “Date/Time from” and “Date/Time to” values in the TCR Tool will be defined. The value of the element is DateTime.




```
<xs:element name="ValidityPeriod">
  <xs:complexType>
```

```
    <xs:sequence>
      <xs:element ref="StartDateTime"/>
      <xs:element ref="EndDateTime" minOccurs="0"/>
    </xs:sequence>
  </xs:complexType>
</xs:element>
```

Example:

*<PlannedCalendar>*

*<BitmapDays>00101000010100001010000101000001</BitmapDays>*

*<ValidityPeriod>*

*<StartDateTime>2020-10-17T09:30:47Z</StartDateTime>*

*<EndDateTime>2020-11-17T09:30:47Z</EndDateTime>*

*</ValidityPeriod>*

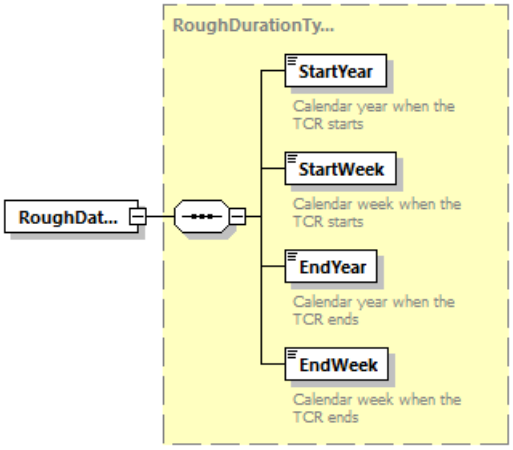
*</PlannedCalendar>*

*<WeeklyPattern>0101000</WeeklyPattern>*

*<WeeklyInterval>1</WeeklyInterval>*

The “**RoughDates**” element is used in the case of not knowing the precise dates, the TCR validity is defined by year/week ranges that approximately define the TCR validity period. Later, when the exact dates will be known, this data should be updated, using the “Planned calendar” element.

The structure is as follows:

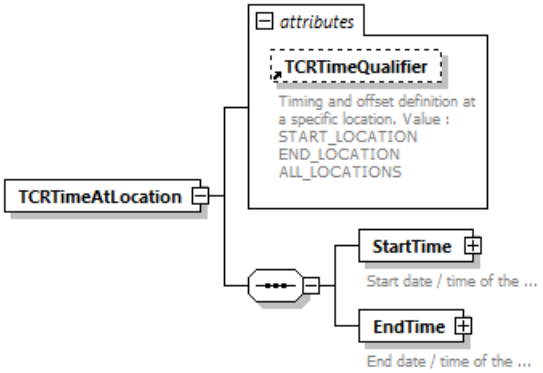



```
<xs:element name="RoughDates" type="RoughDurationType"/>
```

Each TCR with the exact date unknown will be defined with the start and end week in the year. In case that “RoughDates” is chosen, then all four fields are mandatory and **must** be filled in.

The “WeeklyPattern” element is mandatory and contains 7 characters that represent days in the week, starting with the Monday as a first character and so on.

The “**TCRTimeAtLocation**” will be used to define the timing and offset definition at a specific location. The max occurs of this element is 2, that means the start and end location.



Using the “TCRTimeQualifier” attribute the specific (start or end) location or all locations at which differentiation in time can be mentioned.

The “StartTime” and “EndTime” elements define the “Offset” from the original time at the location. In case that exact time is not known, the optional field “Time” will be empty.

The optional “**WeeklyPattern**” is used to define the pattern of the days in a week that is affected by the TCR (7 characters, start with Monday). This is an indication of the design pattern of the TCR, and it is not a calendar of validity days.

```
<xs:element name="WeeklyPattern" type="BitmapWeek" minOccurs="0" />

<xs:simpleType name="BitmapWeek">
  <xs:restriction base="xs:string">
    <xs:minLength value="7"/>
    <xs:maxLength value="7"/>
    <xs:pattern value="[0-1]{7}"/>
  </xs:restriction>
</xs:simpleType>
```

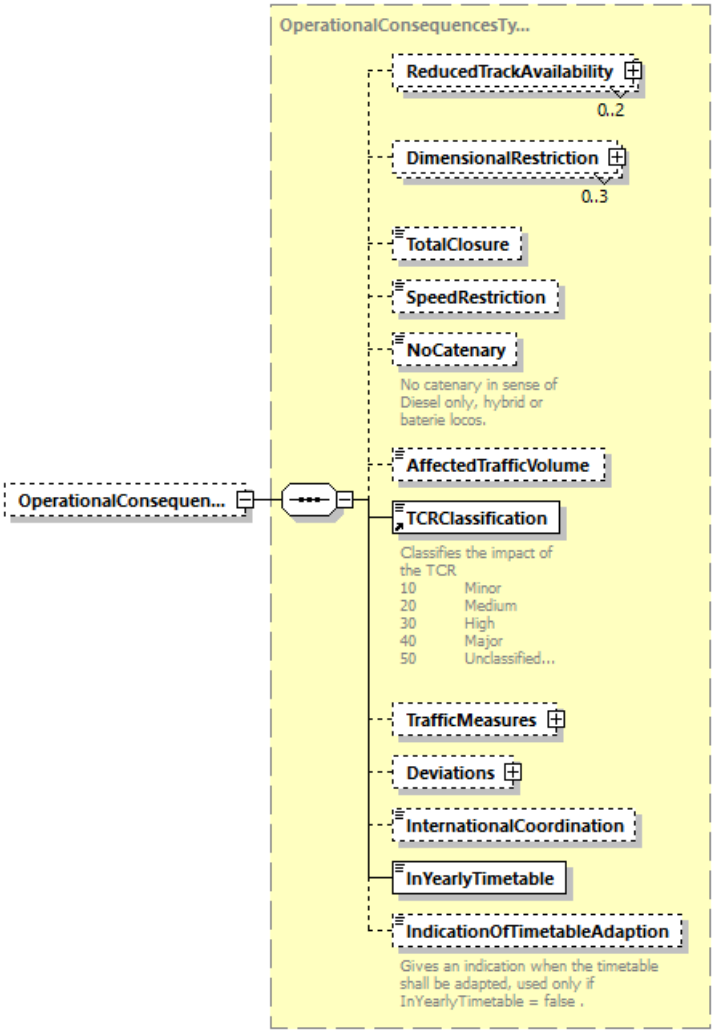
The “**WeeklyInterval**” element is used to define the occurrence of the TCRs and defines the weekly interval of the planned works. The values from 1 to 5 are possible.

E.g. 2 would mean, that the works happen every second week, or every second Monday depends on what is selected in the working days.

```
<xs:element name="WeeklyInterval" type="xs:positiveInteger" minOccurs="0"/>
```

## Operation consequences

The “OperationConsequences” structure contains the elements that describe the TCR consequence on the traffic. This includes the impact on traffic, classification of impact, traffic measures, necessary deviations and the incorporation of traffic measures in the yearly timetable.

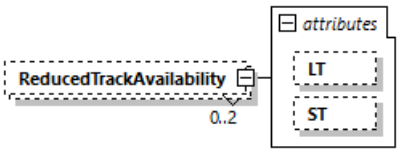



**ReducedTrackAvailability element**

The “ReducedTrackAvailability” is an optional element used to define the reduction on the tracks. Two values could be selected:

LT – Line track

ST – Station track

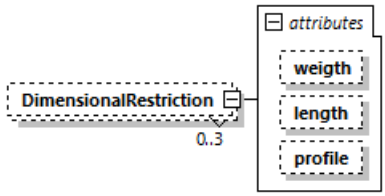



```
<xs:attribute name="LT" type="xs:boolean"/>
<xs:attribute name="ST" type="xs:boolean"/>
```

The occurrence of this element is two times, that means that both elements can be selected. If both values are selected in the TCR, that means that the TCR will reduce the line and station tracks.

**DimensionalRestriction element**

The “DimensionalRestriction” is an optional element that will be used to define the dimensional restrictions. These restrictions are related to the weight, length and profile. The occurrence of this object is three times (once per each value – attribute).




```
<xs:element name="DimensionalRestriction" minOccurs="0" maxOccurs="3">
  <xs:complexType>
    <xs:attribute name="weight" type="xs:boolean"/>
    <xs:attribute name="length" type="xs:boolean"/>
    <xs:attribute name="profile" type="xs:boolean"/>
  </xs:complexType>
</xs:element>
```

**TotalClosure element**

The “TotalClosure” is an optional element that will be used to mention that the TCR impact on the line is total closure.

```
<xs:element name="TotalClosure" type="xs:boolean" minOccurs="0"/>
```

**SpeedRestricition element**

The “SpeedRestricition” is an optional element that will be used to give information that the TCR impact is the speed restriction on the line. There is no information about maximum speed.

```
<xs:element name="SpeedRestriction" type="xs:boolean" minOccurs="0"/>
```

**NoCatenary element**

The “NoCatenary” is an optional element that will be used in the sense of diesel only, hybrid or battery locos.

```
<xs:element name="NoCatenary" type="xs:boolean" minOccurs="0" />
```

**AffectedTrafficVolume element**

The “AffectedTrafficVolume” is an optional element that will be used to give information about the traffic volume that is affected by the TCR. The value should be entered as a positive integer value, representing a percentage.

```
<xs:element name="AffectedTrafficVolume" type="PercentageType" minOccurs="0"/>
```

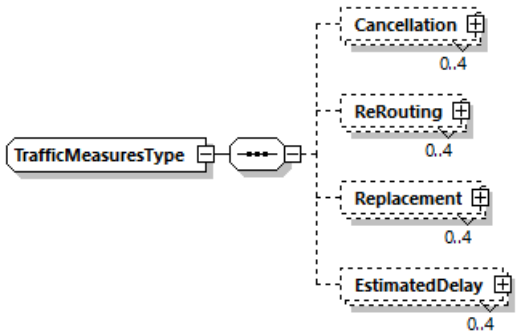
**TCRClassification element**

The “**TCRClassification**” is a mandatory element that will be used to classify the impact of the TCR. The predefined values are as follows:

- 10 – Minor
- 20 – Medium
- 30 – High
- 40 – Major
- 50 – Unclassified

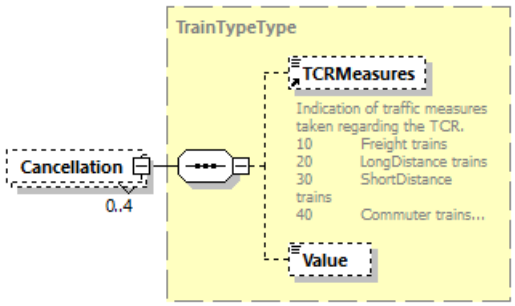
## Traffic measures

The “TrafficMeasures” is an optional element that will be used to indicate traffic measures regarding the TCR. The traffic measures could be Cancellation, ReRouting, Replacement and Estimated delay.




The “**Cancellation**” is an optional element that gives information on what kind of trains are cancelled and accepts four values:

- 10 – Freight trains
- 20 – Long-distance trains
- 30 – Short-distance trains
- 40 – Commuter trains




```
<xs:element name="Cancellation" type="TrainTypeType" minOccurs="0" max-
Occurs="4"/>

<xs:complexType name="TrainTypeType">
  <xs:sequence>
    <xs:element ref="TCRMeasures" minOccurs="0"/>
    <xs:element name="Value" type="xs:boolean" minOccurs="0"/>
  </xs:sequence>
</xs:complexType>
```

The commuter trains cannot be presented in the TCR Tool for the time being. The “TCRMeasures” represents the type of train, and the “Value” gives true/false value.

*<Example>*

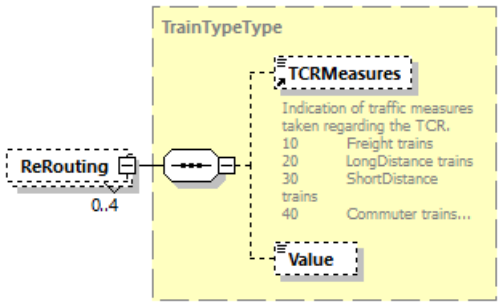
*<TCRMeasures>**20**</TCRMeasures>*

*<Value>**1**</Value>*

*</Example>*

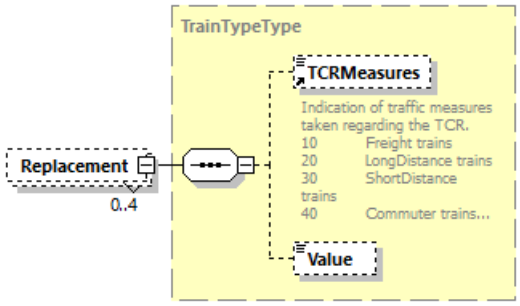
This means that long-distance trains will be cancelled due to the TCR.

The “**ReRouting**” is an optional element that gives information on the trains that will be re-routed. The values and the structure is the same as for the cancellation.



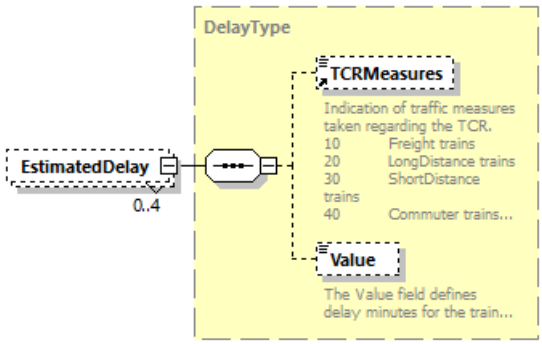

```
<xs:element name="ReRouting" type="TrainTypeType" minOccurs="0" maxOccurs="4"/>
```

The "**Replacement**" is an optional element that gives information on the trains that will be substituted (replaced) by the buses. The values and the structure are the same as for the cancellation.




```
<xs:element name="Replacement" type="TrainTypeType" minOccurs="0" maxOccurs="4"/>
```

The "**EstimatedDelay**" is an optional element that gives information on the estimated delay of the trains. The values and the structure are the same as for the cancellation, but the "Value" field, in this case, defines delay minutes for the train.



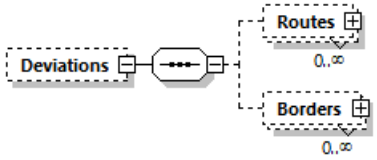

```
<xs:element name="EstimatedDelay" type="DelayType" minOccurs="0" maxOccurs="4"/>

<xs:complexType name="DelayType">
  <xs:sequence>
    <xs:element ref="TCRMeasures" minOccurs="0" />
    <xs:element name="Value" type="xs:positiveInteger" minOccurs="0"/>
```

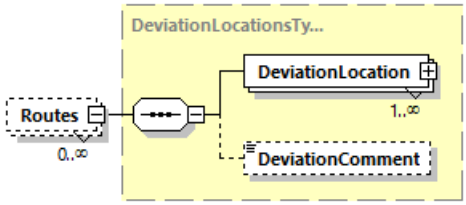
```
    </xs:sequence>
  </xs:complexType>
```

## Deviations

With the "**Deviations**" structure, which is optional, the routes and borders can be defined.

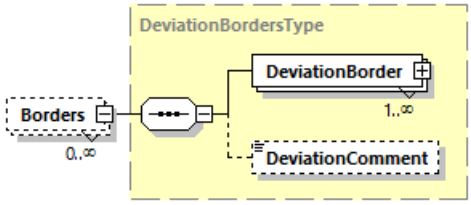



The "**Routes**" is an optional element that will be used to define one or more deviated routes. Using this element, locations within own network where the traffic shall be rerouted, will be defined. The route must contain at least one or more locations.




```
<xs:element name="Routes" type="DeviationLocationsType" minOccurs="0" max-
Occurs="unbounded"/>
```

The "**Borders**" is an optional element that will be used to define one or more deviated borders, where the rail traffic shall be re-routed.




```
<xs:element name="Borders" type="DeviationBordersType" minOccurs="0" max-
Occurs="unbounded"/>
```

**InternationalCoordination element**

The “InternationalCoordination” is an optional element that will be used to give additional information regarding international coordination. The type of the field is a string.

```
<xs:element name="InternationalCoordination" type="xs:string" minOccurs="0"/>
```

**InYearlyTimetable element**

The “InYearlyTimetable” element is mandatory and is used to give information about the selection if the TCR has been already incorporated in the yearly timetable. This element refers to the running timetable period. If the TCR was included in the timetable published for the running timetable period, “InYearlyTimetable” should be set to “true”; and if it was not, it should be set to “false” and the “IndicationOfTimetableAdaption” is then mandatory. The type of element is Boolean.

```
<xs:element name="InYearlyTimetable" type="xs:boolean"/>
```

The “**IndicationOfTimetable**” is an optional element that will be used to give an indication when the timetable shall be adapted. This element must be used in the case that the “InYearlyTimetable” element is false, then this element is mandatory.

```
<xs:element name="IndicationOfTimetableAdaption" type="xs:date" minOccurs="0"/>
```

**ProjectID element**

The “ProjectID” is an optional element that IM can use it to reference to the national project ID of the TCR issuing IM.

```
<xs:element name="ProjectID" type="xs:string" minOccurs="0"/>
```

**TCRStatus element**

The “TCRStatus” is an optional element that will be used to mention the status of the TCR. The predefined values are as follows:

- 10 – Planned – The TCR is not needed to be coordinated and could be further modified in the TCR tool
- 20 – Coordination – The TCR is necessary to coordinate between the involved IMs, that are mentioned in the “AffectedIMs” element
- 30 – Consultation – The TCR is set to the consultation phase where RUs has a possibility to comment it.
- 40 – Published – The status with which the TCR will be immediately set to publication
- 50 – Cancelled – This status should not be sent, while there is a special TCRCanceledMessage, with which the TCR will be cancelled. This value is needed only for the TCRs send via Excel file.

**LastUpdate element**

The “LastUpdate” is an optional element that can be used for providing date of creation and update of a TCR. The message sender can choose to include this information or not.

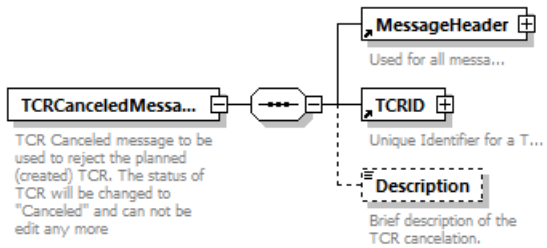
```
<xs:element name="LastUpdated" type="xs:dateTime" minOccurs="0"/>
```

The “**AutomaticProcess**” is the optional element to indicate that the automatic process, regarding the Annex VII deadlines, should apply in the tool to automatically promote TCR to the publication (if this value is set to true). In case this value is set to false, then the TCR publication will be done manually.

```
<xs:element name="AutomaticProcess" type="xs:boolean" minOccurs="0"/>
```

# 5 TCR Canceled Message

The TCRCanceledMessage will be used to cancel/reject the planned TCR. The status of this TCR in the TCR Tool will be changed to “Canceled”.




```
<xs:element name="TCRCanceledMessage">
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="MessageHeader"/>
      <xs:element ref="TCRID"/>
```

```
        <xs:element name="Description" type="xs:string" minOccurs="0">
        </xs:element>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
```

The TCRID which you would like to cancel should exists in the TCR Tool, that means that you already imported or created the TCR with this ID. If not, then an error message will be sent with the TCRResponseMessage.

*<Example>*

*<MessageHeader>*

*<MessageReference>*

*<MessageType>**6502**</MessageType>*

*<MessageTypeVersion>**2.2.2**</MessageTypeVersion>*

*<MessageIdentifier>**UUID** given by CI</MessageIdentifier>*

*<MessageDateTime>**2001-12-17T09:30:47Z**</MessageDateTime>*

*</MessageReference>*

*<Sender>**0080**</Sender>*

*<Recipient>**3178**</Recipient>*

*</MessageHeader>*

*<TCRID>*

*<ObjectType>**TC**</ObjectType>*

*<Company>**0080**</Company>*

*<Core>**000000012345**</Core>*

*<Variant>**00**</Variant>*

*<TimetableYear>**2020**</TimetableYear>*

*<StartDate>**2019-12-08**</StartDate>*

*</TCRID>*

*</Example>*

# 6 Excel structure

## 6.1 Excel errors

An import of TCRs from an Excel file will be done in two basic steps:

1. Validation: Scan the Excel file and check data consistency. A report will be generated which contains a list of identified errors and warnings. If the report contains errors, the user must correct the data in the import file (either by changing the data in a national system which produces the import file, or in the file directly). No data is created in the system. The updated file shall be validated as long as the report contains no errors.

2. Import: When the validation report contains no errors, the TCRs defined in the file are created in the system. A workflow is started for each imported TCR.

The import-validation parses through all TCRs in the Excel file row by row and performs some checks for each line. The result of the checks is written into the validation report. The following validation-phases are performed for each row (=TCR) in the given order:

1. Syntactic Checks: all columns are checked to comply to the allowed type / values defined in the tables in chapter 2.3). This check will e.g. identify if a numeric field contains other characters than [0-9].
2. Semantic Checks: all columns are checked to comply to the constraints defined in the tables in chapter 2.3). This check will e.g. identify if a mandatory field is empty
3. Checks against existing data: all rows are checked as illustrated in the following figure. During this phase, each TCR in the import will be checked one by one. The currently checked TCR is called TCR-I in the illustration. The goal is to check which import mode shall be applied to the TCR-I. Possible modes are:

    * **NEW**: no TCR exists in the DB with the same ID as TCR-I

    * **UPDATE**: there exists a TCR-DB in the database with the same ID as TCR-I. This TCR-DB will be updated according to the values of TCR-I

    *** CANCEL**: there exists a TCR-DB in the database with the same ID as TCR-I. This TCR-DB will be cancelled

    *** IGNORE**: the TCR-I will not be imported

Furthermore, the check identifies conflicting situations by raising an ERROR for TCR-I, e.g. if a TCR-DB shall be updated which is not editable by the importing IM.

## 6.2 Specification of .xls interface

The excel file used for importing TCRs needs to follow a predefined structure. The overview of this structure can be seen in Annex A of this document.

The excel file to be imported must fulfil the following rules:

- The TCR are on the **2nd sheet**
- The TCR definitions start from the **4th row**

The columns in the Excel sheet must be used as defined below. Note that only columns relevant for the import are listed. The table has the following structure:

- Column – Column identifier in the Excel file
- Interpretation – Meaning of the column (form the Header row)
- Allowed type– The type of the column
- Constraints / Values – Rules that will be validated during the import and predefined values in the excel. Mandatory fields are marked with *Not null*.
- Mapping – The name of the field of the TCR form into which the value of the column will be mapped

| Column | Interpretation | Allowed type | Constraints / Values | Mapping |
|---|---|---|---|---|
| B | IM | Text | Not null; Value must match the name of an Organisation Units defined in the TCR-Tool | IM (Organisation Unit) |
| C | ID | Text | Not Null; The combination IM (column B) together with ID (column C) must be unique | Reference ID |
| D | Section | Text | Not Null; Value must match the section which is computed from the fields 'Location From' and 'Location To' | *Not mapped* |
| E | Direction | Text | Not null; Value must be in [<, >, <>] | Direction |
| F | From Location | Text | Not Null; Value must match a Location stored in the TCR Tool topology data | Location from |
| G | To Location | Text | if null, then the interpretation is that 'To Location' is the same as 'From Location'<br>if not null, the value must match a Location stored in the TCR Tool topology data | Location to |
| H | Year From | Number | Not null | Year From |
| I | Year To | Number | Not Null; Must be >= Year From (Column H) | Year To |
| J | Week From | Number | Not null; Value must be in [1-52] | Week From |
| K | Week To | Number | Not null; Value must be in [1-52] | Week To |

| | | | | |
|---|---|---|---|---|
| L | Date From | Date | If not null, the date must be in the calendar week as defined by Year From and Week From | Date/Time From |
| M | Time From | Time | If not null, then also Date From must be not null;<br>If null and Date From is not null, Time From is interpreted as 00:00 | Date/Time From |
| N | Date To | Date | If not null, then also Date From must be not null; shall be equal or later than Date From | Date/Time To |
| O | Time To | Time | If not null, then also Date To must be not null;<br>If null and Date To is not null, Time To is interpreted as 23:00 | Date/Time To |
| P | Duration | Text | - | Duration |
| Q | Time of day | Text | Not null; Value must be in [continuous, periodical, periodical continuous] | Type of TCR |
| R | Reason of restriction | Text | -; Value must be in Signal; Switch; Catenary; Track & Rail; Tunnel; Bridge; Miscellaneous*; Maintenance,<br>Others**] | Reason of restriction |
| S | Total Closure | Text | -; Value must be in [X] | Total Closure (true if value = X) |
| T | Reduced Track Availability | Text | -; Value must be in [LT, ST, LT+ST] | Reduced Track Availability LT (true if value in [LT; LT+ST])<br>Reduced Track Availability ST (true if value in [ST; LT+ST]) |
| U | Speed Restrictions | Text | -; Value must be in [X] | Speed Restrictions (true if value = X) |
| V | Weight, Length, Profile | Text | -; Value must be in [W; L; P; W+L; W+P; L+P; W+L+P] | Weight (true if value in [W; W+L; W+P; W+L+P])<br>Length (true if value in [L; W+L; L+P; W+L+P])<br>Profile (true if value in [P; W+P; L+P; W+L+P]) |
| W | No catenary (ex Diesel only) | Text | -; Value must be in [X] | No catenary (true if value = X) |
| X | Cancellation | Text | -; Value must be in [X], comma-separated (for the freight trains, long-distance trains and short-distance trains)<br>e.g. [**X,,X**] applies to freight and short-distance trains | Cancellation Freight trains (true if value X) |
| Y | Re-routing | Text | -; Value must be in [X], comma-separated (for the freight trains, long-distance trains and short-distance trains)<br>e.g. [**X,,X**] applies to freight and short-distance trains | Re-routing Freight trains (true if value = X) |
| Z | Train replacement | Text | -; Value must be in [X], comma-separated (for the freight trains, long-distance trains and short-distance trains) | Train replacement Freight trains (true if value = X) |

| | | | | |
|---|---|---|---|---|
| | | | e.g. [**X,,X**] applies to freight and short-distance trains | |
| AA | Delays | Text | -; Value must be in [D, X, or positive integers] | Estimated delays (true if value not null)<br>Define delay minutes (if value represents a positive integer) |
| AB | Other | Text | - | Other |
| AC | Description | Text | - | Description |
| AD | International coordination | Text | - | International coordination |
| AE | In yearly timetable | Text | - | In annual timetable (mapping TBD: proposal to change allowed values to [Y] or [Y; N] |
| AF | IM project ID | Text | - | IM Project ID |
| AG | Last update | Datetime | - | Data status |
| AH | Classification | Text | Not null; Value must be in [Major; High; Medium; Minor; Unclassified] | Classification |
| AI | Weekdays | Text | -; Working days comma-separated values, from 1-7 starting with Monday (1), Tuesday (2)… | Working Days |
| AJ | Interval | Number | -; Values must be in 1-5 (Defines weekly interval of planned works) | Weekly interval |
| AK | Affected estimated travel volume | Number | - | Affected estimated travel volume |
| AL | Affected border | Text | -; PLC codes of the affected border locations (in the case of more borders, they must be comma-separated) | Affected border |
| AM | Deviation location | Text | -; comma-separated location PLCs on the deviation route | Deviation location |
| AN | Deviation border | Text | -; comma-separated border PLCs | Deviation border |
| AO | Status | Text | If null the value will be calculated in the tool considering GeoEditor coordination parameter; Value must be in [Planned, Coordination, Consultation, Published, Canceled or empty] | If null (empty) it will be set according the import logic and GeoEditor parameter;<br>Status |
| AP | Additional information | Text | -; Currently will not be used | - |
| AQ | Automatic process | Text | If yes, then automatic publication in the tool will start, according Annex VII deadlines. Value must be in [Y; N] | Automatic process |

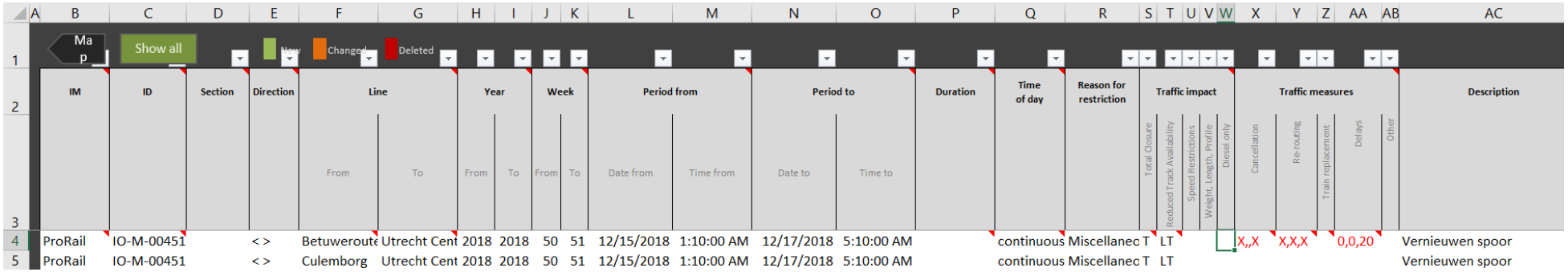
## 6.3

## 6.4 Specification of .xml interface

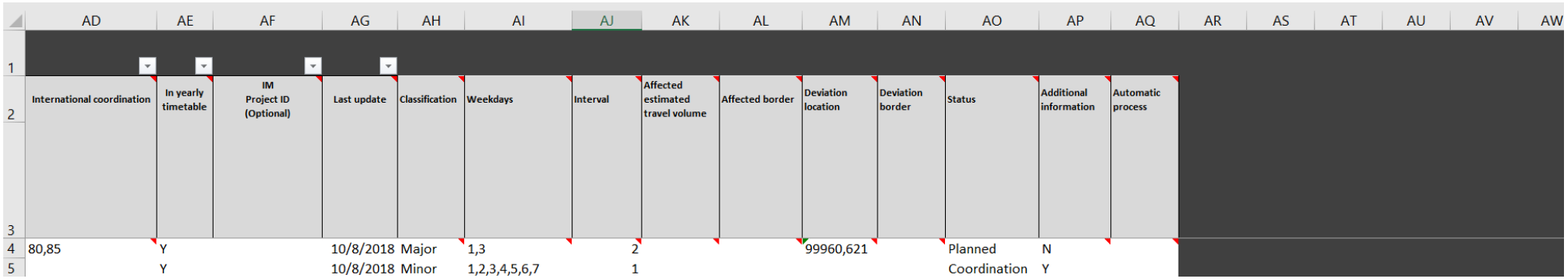
The overview of the XML structure can be seen in Annex B of this document.

### *6.4.1.1 Annex A*

Structure of Excel file



| | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z | AA | AB | AC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | Map | Show all | | New | | Changed | | Deleted | | | | | | | | | | | | | | | | | | | | |
| 2 | | IM | ID | Section | Direction | Line | | Year | | Week | | Period from | | Period to | | Duration | Time of day | Reason for restriction | Traffic impact | | | | | Traffic measures | | | | | Description |
| 3 | | | | | | From | To | From | To | From | To | Date from | Time from | Date to | Time to | | | | Total Closure | Reduced Track Availability | Speed Restrictions | Weight, Length, Profile | Diesel only | Cancellation | Re-routing | Train replacement | Delays | Other | |
| 4 | | ProRail | IO-M-00451 | | < > | Betuweroute | Utrecht Cent | 2018 | 2018 | 50 | 51 | 12/15/2018 | 1:10:00 AM | 12/17/2018 | 5:10:00 AM | | continuous | Miscellaneo | T | LT | | | | X,,X | X,X,X | | 0,0,20 | | Vernieuwen spoor |
| 5 | | ProRail | IO-M-00451 | | < > | Culemborg | Utrecht Cent | 2018 | 2018 | 50 | 51 | 12/15/2018 | 1:10:00 AM | 12/17/2018 | 5:10:00 AM | | continuous | Miscellaneo | T | LT | | | | | | | | | Vernieuwen spoor |



| | AD | AE | AF | AG | AH | AI | AJ | AK | AL | AM | AN | AO | AP | AQ | AR | AS | AT | AU | AV | AW |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | | | | | | | | | | | |
| 2 | International coordination | In yearly timetable | IM Project ID (Optional) | Last update | Classification | Weekdays | Interval | Affected estimated travel volume | Affected border | Deviation location | Deviation border | Status | Additional information | Automatic process | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | | | |
| 4 | 80,85 | Y | | 10/8/2018 | Major | 1,3 | 2 | | | 99960,621 | | Planned | N | | | | | | | |
| 5 | | Y | | 10/8/2018 | Minor | 1,2,3,4,5,6,7 | 1 | | | | | Coordination | Y | | | | | | | |

Annex B

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:TCRMessage xmlns:xs="http://www.w3.org/2001/XMLSchema"
xmlns="http://www.era.europa.eu/schemes/TAFTSI/3.5"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
	<xs:MessageHeader>
		<xs:MessageReference>
			<xs:MessageType>6500</xs:MessageType>
			<xs:MessageTypeVersion>3.5.0.0</xs:MessageTypeVersion>
			<xs:MessageIdentifier>d1514718-95f7-11ef-a147</xs:Mes-
sageIdentifier>
			<xs:MessageDateTime>2026-06-19T10:31:22Z</xs:MessageDateTime>
		</xs:MessageReference>
		<xs:Sender>0</xs:Sender> <-—Your company code-->
		<xs:Recipient>3178</xs:Recipient>
	</xs:MessageHeader>
	<xs:TCR>
		<xs:Identifiers>
			<xs:ObjectType>TC</xs:ObjectType>
			<xs:Company>1</xs:Company>  <-- Your company code-->
			<xs:Core>**********1</xs:Core>
			<xs:Variant>00</xs:Variant>
			<xs:TimetableYear>2027</xs:TimetableYear>
		</xs:Identifiers>
		<xs:CoordinatingIM>1</xs:CoordinatingIM> <-- Coordinator company
	code-->
		<xs:AdministrativeContactInformation>
			<xs:Name>Contact name and surname</xs:Name>
			<xs:Address>a</xs:Address>
			<xs:eMail>a</xs:eMail>
			<xs:PhoneNumber>a</xs:PhoneNumber>
			<xs:FaxNumber>a</xs:FaxNumber>
			<xs:FreeTextField>a</xs:FreeTextField>
		</xs:AdministrativeContactInformation>
```

```
<xs:ReasonForRestriction>20</xs:ReasonForRestriction> <-- Switch -->
<xs:Description>A short TCR description</xs:Description>
<xs:StartLocation>
	<xs:CountryCodeISO>aa</xs:CountryCodeISO>
	<xs:LocationPrimaryCode>1</xs:LocationPrimaryCode>
	<xs:PrimaryLocationName>a</xs:PrimaryLocationName>
</xs:StartLocation>
<xs:EndLocation>
	<xs:CountryCodeISO>aa</xs:CountryCodeISO>
	<xs:LocationPrimaryCode>1</xs:LocationPrimaryCode>
	<xs:PrimaryLocationName>a</xs:PrimaryLocationName>
</xs:EndLocation>
<xs:Sections>
	<xs:Section>
		<xs:StartLocation>
			<xs:CountryCodeISO>aa</xs:CountryCodeISO>
			<xs:LocationPrimaryCode>1</xs:LocationPrimaryCode>
			<xs:PrimaryLocationName>a</xs:PrimaryLocationName>
		</xs:StartLocation>
		<xs:EndLocation>
			<xs:CountryCodeISO>aa</xs:CountryCodeISO>
			<xs:LocationPrimaryCode>1</xs:LocationPrimaryCode>
			<xs:PrimaryLocationName>a</xs:PrimaryLocationName>
		</xs:EndLocation>
		<xs:Name>a</xs:Name>
	</xs:Section>
</xs:Sections>
<xs:TCRDirection>20</xs:TCRDirection>
<xs:AffectedBorders>
	<xs:AffectedBorder>
		<xs:CountryCodeISO>aa</xs:CountryCodeISO>
```

```
                        <xs:LocationPrimaryCode>1</xs:LocationPrimaryCode>
                        <xs:PrimaryLocationName>a</xs:PrimaryLocationName>
                  </xs:AffectedBorder>
            </xs:AffectedBorders>
            <xs:AffectedIMs>
                  <xs:AffectedIM>
                        <xs:CompanyCode>1</xs:CompanyCode>
                        <xs:CompanyName>a</xs:CompanyName>
                        <xs:CoordinationStatus>DISAGREED</xs:CoordinationStatus>
                        <xs:CoordinationComment>String</xs:CoordinationComment>
                  </xs:AffectedIM>
            </xs:AffectedIMs>
            <xs:InvolvedICE>
                  <xs:InvolvedICE>
                        <xs:ICEName>a</xs:ICEName>
                        <xs:Recommendation>true</xs:Recommendation>
                        <xs:Comments>String</xs:Comments>
                  </xs:InvolvedICE>
            </xs:InvolvedICE>
            <xs:TemporalExpansion xs:ExpansionType="PERIODICAL">
                  <xs:PlannedCalendar>
                        <xs:BitmapDays>011000000000000011000000000</xs:BitmapDays>
                        <xs:ValidityPeriod>
                              <xs:StartDateTime>2026-12-
17T09:30:47Z</xs:StartDateTime>
                              <xs:EndDateTime>2027-01-
10T09:30:47Z</xs:EndDateTime>
                        </xs:ValidityPeriod>
                  </xs:PlannedCalendar>
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