

TAF/TAP-TSI TrainID

Framework for Usage of ObjectInfoMessage

History of document versions

Version	Date	Author	Reason for change / comment
0.1	2015-03-09	Seid Maglajlic	Creation (1 st draft)

Content

1. About this document	3
2. Introduction	3
3. Request Information about Train object.....	10
4. RU Triggered: ObjectInfoMessage Framework: Send information about the Train	10
5. RU or IM Triggered: Update the information about the object	15
6. Conclusion	19

1. About this document

This document contains the concise description of the framework for usage of ObjectInfo messages. The basic cases that explain the usage of the ObjectInfo message are provided in the form of a table with one column and four rows:

Precondition – the precondition that has to be fulfilled in order to process the particular ObjectInfoMessage
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Trigger – the situation or circumstances which drove the company to the decision to send the ObjectInfoMessage

Business process – we refer here to the Business Scenarios given in the WG 10 Handbook that are translated into the UML Model Activity Diagrams. The readers are required to be familiar with WG 10 Handbook or Sector Handbook and the corresponding UML Model before examining this document.

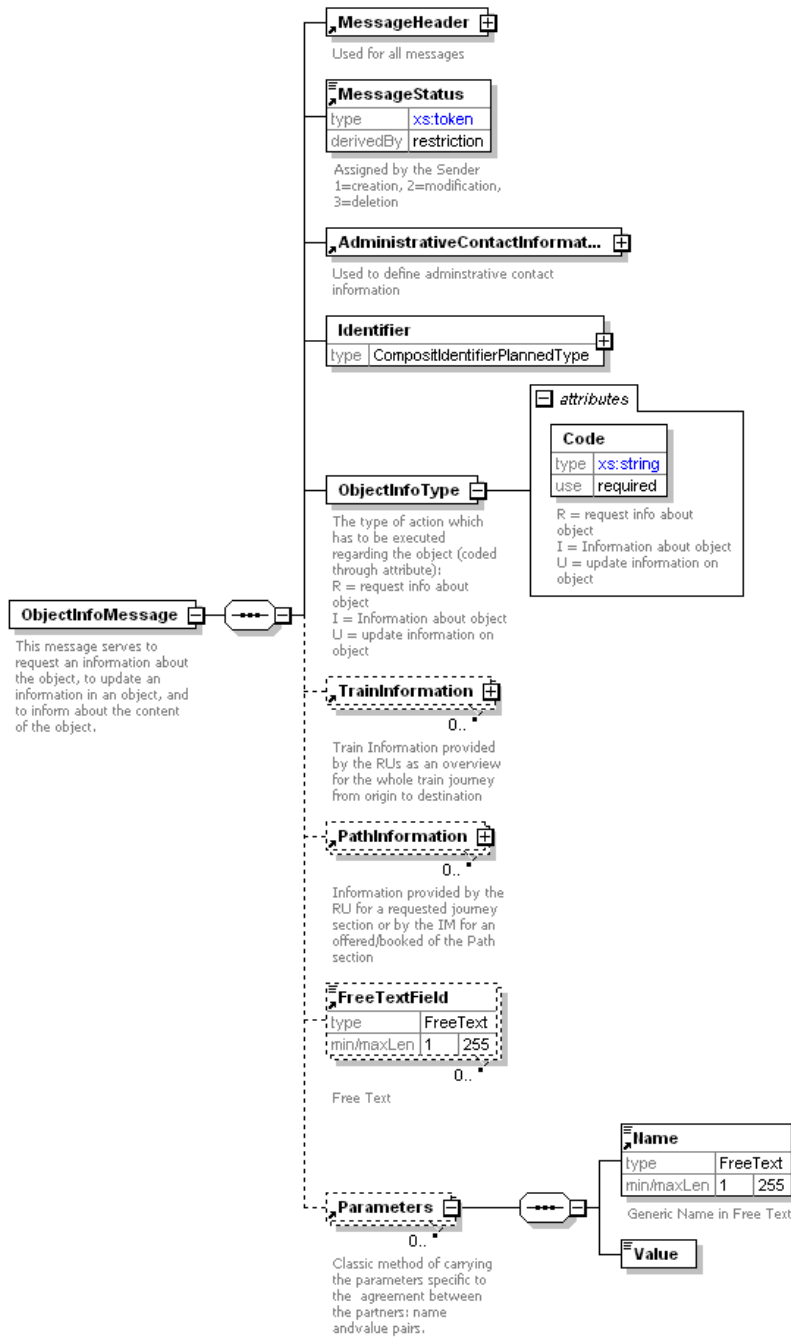
Illustration

ObjectInfoMessage XML content example according to the illustration. The readers are required to be familiar with the XSD of the ObjectInfoMessage when examining this document. The overview of the ObjectInfoMessage XSD model is given in the chapter "Introduction".
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Consequences: what happens after the message is transmitted – which business processes should be considered.
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2. Introduction

The ObjectInfoMessage framework provided here explains the basic idea for the usage of this message in order to get the information about Train, Path, PathRequest or CaseReference objects. The examples are made in XML format, according to the XSD that has been designed for ObjectInfoMessage. The structure of the message looks as follows:



Generated by XMLSpy
Fig. 1 XSD structure of ObjectInfoMessage

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Seid Maglajlic 19/3/2015 14:26
Kommentar [1]: Explanation on the usage of the identifier- planned type.

The most important (kernel) part of the message is given in the ObjectInfoTypeInfo element:

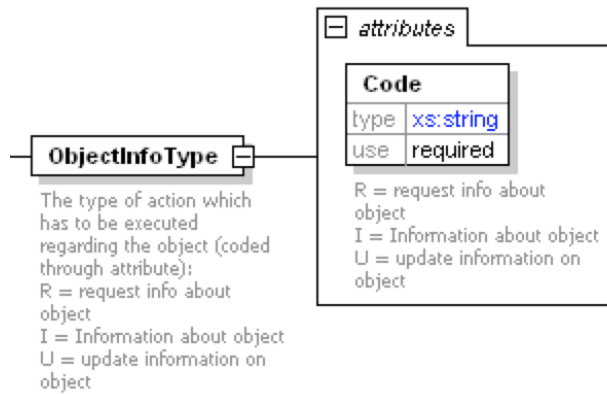


Fig. 2 ObjectInfoType element

The ObjectInfoType element indicates which procedure has to be executed by the following codes:

- **R**: Request the information about the object identified by Identifier element
- **I**: Information on the object required by the requestor, by previously using the type R
- **U**: Update the information about the object identified by Identifier element

We will explain the usage of these codes in the ObjectInfoType element in the subsequent sections.

Indication of the Identifier

When communicating with ObjectInfoMessage, only one identifier for ONE (1) object can be sent/received.

Identifier is a mandatory element of the message.

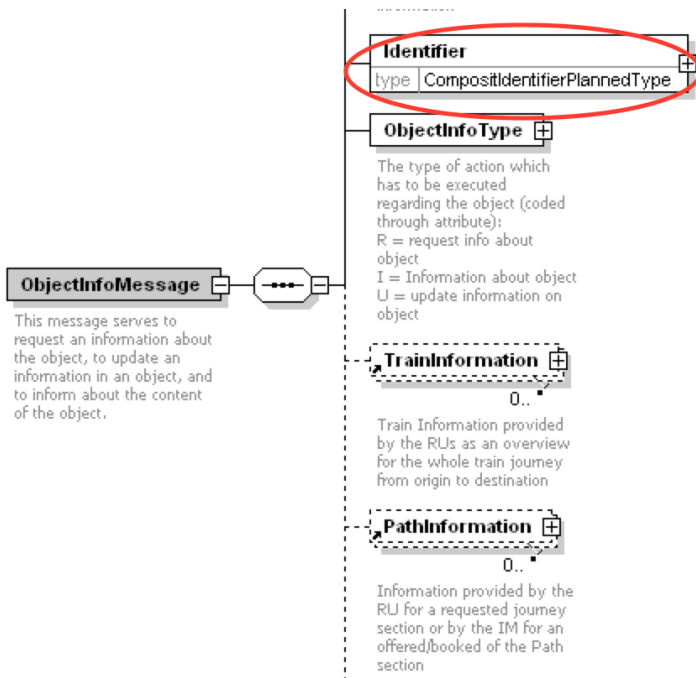


Fig. 4 Identifier in the ObjectInfoMessage

TrainInformation element

TrainInformation element is used to indicate the content of the object Train. The owner of the object Train should indicate the TrainID in the “Identifier” element and fill the TrainInformation block with the data of the Train.

TrainInformation is an optional element of the message. It should not be provided when the ObjectInfoType is “R” (request).

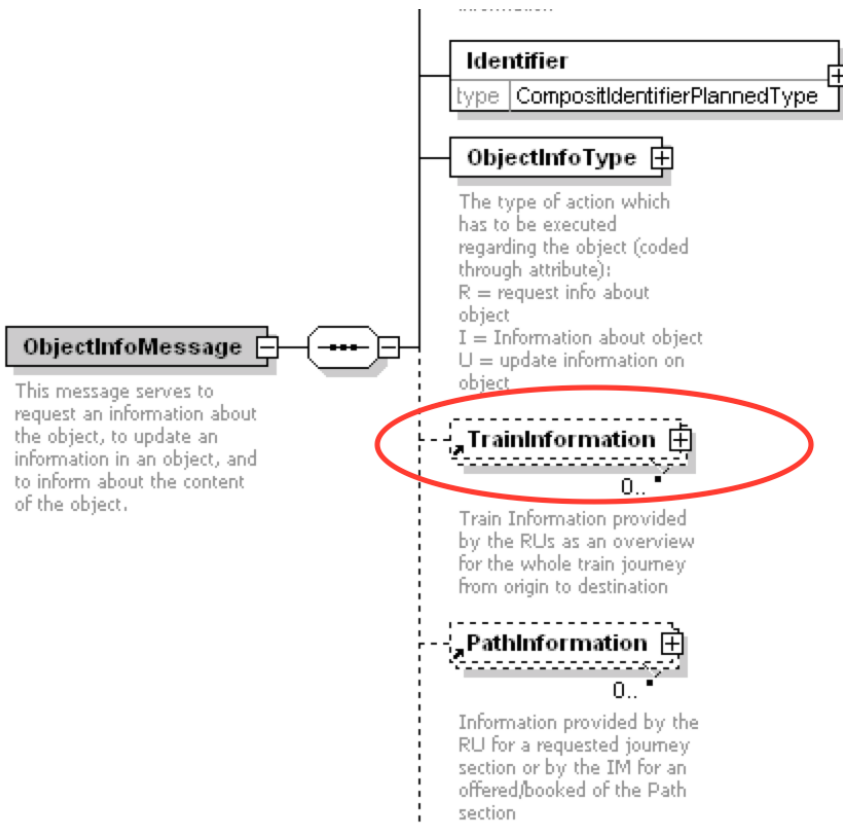


Fig. 5 TrainInformation in ObjectInfoMessage

PathInformation element

PathInformation element is usually used (if alone in the message!) to carry the content of the Path object. The owner of the object Path should indicate the PathID in the Identifier element and fill the PathInformation block with the data of the Path. PathInformation is an optional element of the message. It should not be provided when the ObjectInfoType is “R” (request).

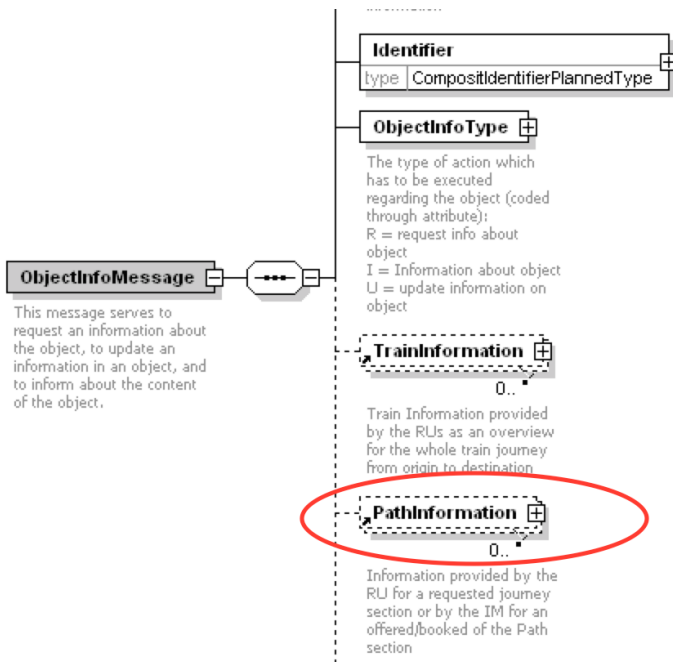


Fig. 6 PathInformation in ObjectInfoMessage

Using TrainInformation and PathInformation elements in the same message

The TrainInformation and PathInformation element are both present in the message if the details about the PathRequest object are sent.

Multiplicity of TrainInformation and PathInformation elements

It is important to note that ObjectInfoMessage carries the arrays of TrainInformation and PathInformation elements.

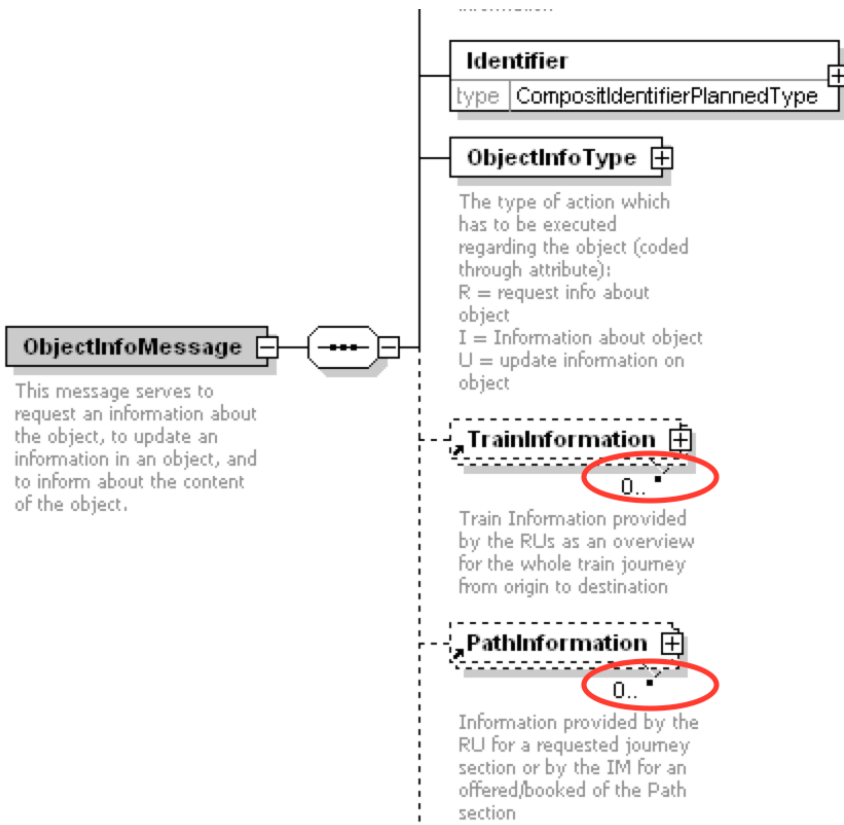


Fig. 3 Arrays of TrainInformation and PathInformation

This feature can be used for transfer of information about, for example, Case Reference, which can link several trains related to the same business case.

General pre-condition:

Both RU and IM have the separated records for objects Train, Path and PathRequest. The status of these objects in both RU and IM systems is up-to-date.

General rule:

The partners have to agree about the usage of CaseReference object before starting to issue the requests about the information on CaseReferences.

Example: usage of Case Reference object in PCS and usage of ObjectInfoMessage for communication about PCS dossiers. This is described in the separated framework document.

3. Request Information about Train object

Precondition:

TrainID is known by both partners. Both partners are able to process the business object Train identified by TrainID.

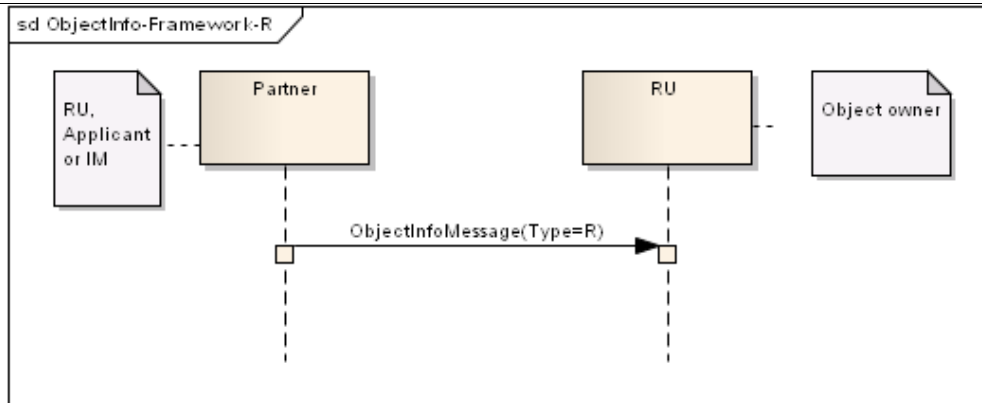
Trigger:

Partner (RU/Applicant or IM) wants to get the detailed information about the **Train identified by TrainID**.

Business process:

See sequence diagram

Activity: Request for the information about the object.



```

<ObjectInfoMessage>
  ...
  <Identifier>
    <ObjectType>TR</ObjectType>
    <Company>2080</Company>
    <Core>ttt123456789</Core>
    <Variant>00</Variant>
    <TimetableYear>2016</TimetableYear>
  </Identifier>
  <ObjectInfoType Code="R"/>
</ObjectInfoMessage>
  
```

Consequences:

- 1) The message receiver retrieves the system and looks for the Train object identified by the given TrainID
- 2) General rules apply

4. RU Triggered: ObjectInfoMessage Framework: Send information about the Train

Precondition:

Train object is created and stored in the database of the owner.

Trigger:

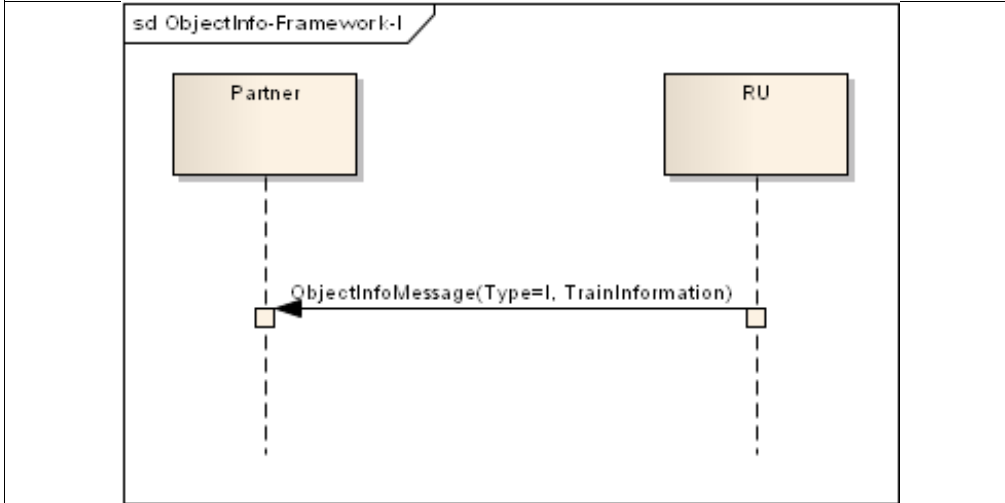
RU wants to inform the partners about the Train. The possible reasons are:

- Information about the object was requested by the partner
- UpdateLinkMessage will follow to start “Change Of Train (COT)” procedure
- Harmonization between RU partners

Business process:

See the sequence diagram.

Activity: Information about the object



```

<ObjectInfoMessage>
  ...
  <Identifier>
    <ObjectType>TR</ObjectType>
    <Company>2080</Company>
    <Core>ttt123456789</Core>
    <Variant>00</Variant>
    <TimetableYear>2016</TimetableYear>
  </Identifier>
  <ObjectInfoType Code="I"/>
<TrainInformation>
  <PlannedJourneyLocation JourneyLocationTypeCode="08">
    <CountryCodeISO>de</CountryCodeISO>
    <LocationPrimaryCode>16741</LocationPrimaryCode>
    <PrimaryLocationName>Mannheim Hbf</PrimaryLocationName>
    <TimingAtLocation>
      <Timing TimingQualifierCode="ALD">
        <Time>09:00:00</Time>
        <Offset>0</Offset>
      </Timing>
    </TimingAtLocation>
    <FreeTextField>note:path might be affected by works, modifications are possible
      7 hrs, 2 stops, 45 min</FreeTextField>
    <ResponsibleApplicant>2180</ResponsibleApplicant>
    <ResponsibleRU>2180</ResponsibleRU>
    <ResponsibleIM>80</ResponsibleIM>
    <PlannedTrainData>
      <TrainType>2</TrainType>
      <TrafficType>01</TrafficType>
      <PlannedTrainTechnicalData>
        <TrainWeight>1280</TrainWeight>
        <TrainLength>600</TrainLength>
        <WeightOfSetOfCarriages>120</WeightOfSetOfCarriages>
        <LengthOfSetOfCarriages>60</LengthOfSetOfCarriages>
        <TractionDetails>
          <LocoTypeNumber>**185</LocoTypeNumber>
          <TractionMode>11</TractionMode>
        </TractionDetails>
        <TrainMaxSpeed>100</TrainMaxSpeed>
        <HighestPlannedSpeed>100</HighestPlannedSpeed>
        <EmergencyBrakeOverride>>false</EmergencyBrakeOverride>
        <MinBrakedWeightPercent>78</MinBrakedWeightPercent>
      </PlannedTrainTechnicalData>
      <CombinedTrafficLoadProfile>
        <P1>70</P1>
        <P2>400</P2>
        <C1>70</C1>
        <C2>400</C2>
      </CombinedTrafficLoadProfile>
    </PlannedTrainData>
    <TrainActivity>
      <TrainActivityType>0001</TrainActivityType>
    </TrainActivity>
    <OnDemandPath>>false</OnDemandPath>
    <PreArrangedPath>>false</PreArrangedPath>
  </PlannedJourneyLocation>
  <PlannedJourneyLocation JourneyLocationTypeCode="08">
    <CountryCodeISO>de</CountryCodeISO>
    <LocationPrimaryCode>13284</LocationPrimaryCode>
    <PrimaryLocationName>Frankfurt (Main) Ost Gbf</PrimaryLocationName>
  </PlannedJourneyLocation>

```

```

<TimingAtLocation>
  <Timing TimingQualifierCode="ALA">
    <Time>10:00:00</Time>
    <Offset>0</Offset>
  </Timing>
  <Timing TimingQualifierCode="ALD">
    <Time>11:00:00</Time>
    <Offset>0</Offset>
  </Timing>
</TimingAtLocation>
<FreeTextField>note:path might be affected by works, modifications are possible
  7 hrs, 2 stops, 45 min</FreeTextField>
<ResponsibleApplicant>2180</ResponsibleApplicant>
<ResponsibleRU>2180</ResponsibleRU>
<ResponsibleIM>80</ResponsibleIM>
<PlannedTrainData>
  <TrainType>2</TrainType>
  <TrafficType>01</TrafficType>
  <PlannedTrainTechnicalData>
    <TrainWeight>1280</TrainWeight>
    <TrainLength>600</TrainLength>
    <WeightOfSetOfCarriages>120</WeightOfSetOfCarriages>
    <LengthOfSetOfCarriages>60</LengthOfSetOfCarriages>
    <TractionDetails>
      <LocoTypeNumber>**185</LocoTypeNumber>
      <TractionMode>11</TractionMode>
    </TractionDetails>
    <TrainMaxSpeed>100</TrainMaxSpeed>
    <HighestPlannedSpeed>100</HighestPlannedSpeed>
    <EmergencyBrakeOverride>>false</EmergencyBrakeOverride>
    <MinBrakedWeightPercent>78</MinBrakedWeightPercent>
  </PlannedTrainTechnicalData>
  <CombinedTrafficLoadProfile>
    <P1>70</P1>
    <P2>400</P2>
    <C1>70</C1>
    <C2>400</C2>
  </CombinedTrafficLoadProfile>
</PlannedTrainData>
<TrainActivity>
  <TrainActivityType>0001</TrainActivityType>
</TrainActivity>
<OnDemandPath>>false</OnDemandPath>
<PreArrangedPath>>false</PreArrangedPath>
</PlannedJourneyLocation>
<PlannedJourneyLocation JourneyLocationTypeCode="08">
  <CountryCodeISO>de</CountryCodeISO>
  <LocationPrimaryCode>16691</LocationPrimaryCode>
  <PrimaryLocationName>Mainz Gbf</PrimaryLocationName>
  <TimingAtLocation>
    <Timing TimingQualifierCode="ALA">
      <Time>12:00:00</Time>
      <Offset>0</Offset>
    </Timing>
  </TimingAtLocation>
  <FreeTextField>note:path might be affected by works, modifications are possible
    7 hrs, 2 stops, 45 min</FreeTextField>
  <ResponsibleApplicant>2180</ResponsibleApplicant>
  <ResponsibleRU>2180</ResponsibleRU>
  <ResponsibleIM>80</ResponsibleIM>
</PlannedTrainData>

```


5. RU or IM Triggered: Update the information about the object

Precondition:

Train object is stored in both systems – the one of the object owner and the one of the partner. The partners may also agree on the change communication – what should be additionally written in the message to describe the change by using FreeTextField.

Trigger:

Object owner RU wants to urge the partners to upate the information about Train. The reasons can be (just to mention a few):

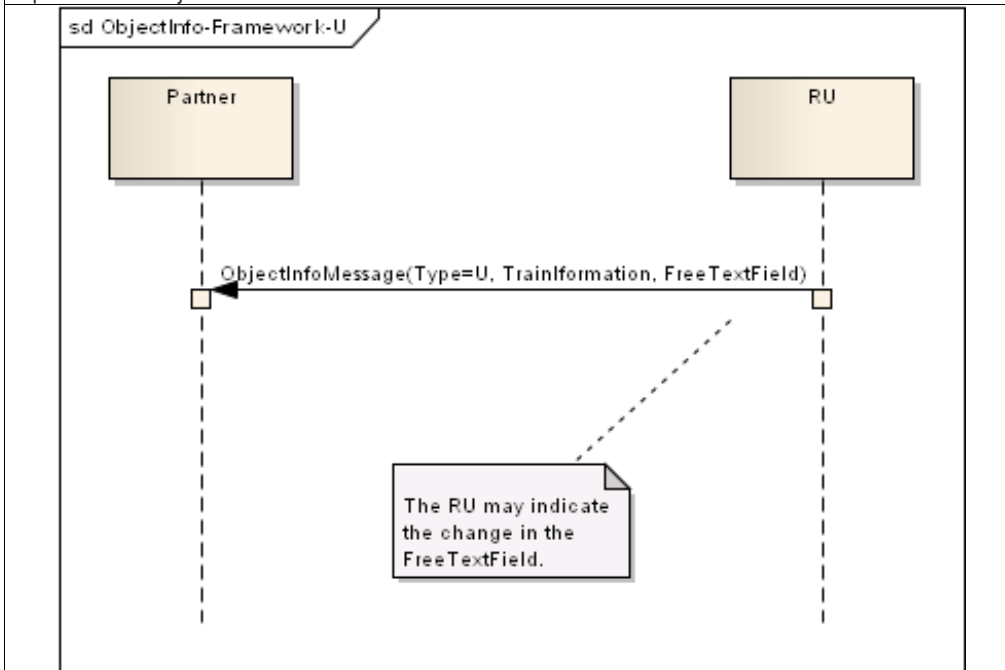
- UpdateLinkMessage will follow to start “Train Shifting (TS)” procedure
- Harmonization between RU partners

Business process:

See sequence diagram

Activity:

Update Train object



```

<ObjectInfoMessage>
  ...
  <Identifier>
    <ObjectType>TR</ObjectType>
    <Company>2080</Company>
    <Core>ttt123456789</Core>
    <Variant>00</Variant>
    <TimetableYear>2016</TimetableYear>
  </Identifier>
  <ObjectInfoType Code="U"/>
<TrainInformation>
  <PlannedJourneyLocation JourneyLocationTypeCode="08">
    <CountryCodeISO>de</CountryCodeISO>
    <LocationPrimaryCode>16741</LocationPrimaryCode>
    <PrimaryLocationName>Mannheim Hbf</PrimaryLocationName>
    <TimingAtLocation>
      <Timing TimingQualifierCode="ALD">
        <Time>09:10:00</Time>
        <Offset>0</Offset>
      </Timing>
    </TimingAtLocation>
    <FreeTextField>note:path might be affected by works, modifications are possible
      7 hrs, 2 stops, 45 min</FreeTextField>
    <ResponsibleApplicant>2180</ResponsibleApplicant>
    <ResponsibleRU>2180</ResponsibleRU>
    <ResponsibleIM>80</ResponsibleIM>
    <PlannedTrainData>
      <TrainType>2</TrainType>
      <TrafficType>01</TrafficType>
      <PlannedTrainTechnicalData>
        <TrainWeight>1280</TrainWeight>
        <TrainLength>600</TrainLength>
        <WeightOfSetOfCarriages>120</WeightOfSetOfCarriages>
        <LengthOfSetOfCarriages>60</LengthOfSetOfCarriages>
        <TractionDetails>
          <LocoTypeNumber>**185</LocoTypeNumber>
          <TractionMode>11</TractionMode>
        </TractionDetails>
        <TrainMaxSpeed>100</TrainMaxSpeed>
        <HighestPlannedSpeed>100</HighestPlannedSpeed>
        <EmergencyBrakeOverride>false</EmergencyBrakeOverride>
        <MinBrakedWeightPercent>78</MinBrakedWeightPercent>
      </PlannedTrainTechnicalData>
      <CombinedTrafficLoadProfile>
        <P1>70</P1>
        <P2>400</P2>
        <C1>70</C1>
        <C2>400</C2>
      </CombinedTrafficLoadProfile>
    </PlannedTrainData>
    <TrainActivity>
      <TrainActivityType>0001</TrainActivityType>
    </TrainActivity>
    <OnDemandPath>false</OnDemandPath>
    <PreArrangedPath>false</PreArrangedPath>
  </PlannedJourneyLocation>
  <PlannedJourneyLocation JourneyLocationTypeCode="08">
    <CountryCodeISO>de</CountryCodeISO>
    <LocationPrimaryCode>13284</LocationPrimaryCode>
    <PrimaryLocationName>Frankfurt (Main) Ost Gbf</PrimaryLocationName>
    <TimingAtLocation>

```



```

<Timing TimingQualifierCode="ALA">
  <Time>10:00:00</Time>
  <Offset>0</Offset>
</Timing>
<Timing TimingQualifierCode="ALD">
  <Time>11:00:00</Time>
  <Offset>0</Offset>
</Timing>
</TimingAtLocation>
<FreeTextField>note:path might be affected by works, modifications are possible
7 hrs, 2 stops, 45 min</FreeTextField>
<ResponsibleApplicant>2180</ResponsibleApplicant>
<ResponsibleRU>2180</ResponsibleRU>
<ResponsibleIM>80</ResponsibleIM>
<PlannedTrainData>
  <TrainType>2</TrainType>
  <TrafficType>01</TrafficType>
  <PlannedTrainTechnicalData>
    <TrainWeight>1280</TrainWeight>
    <TrainLength>600</TrainLength>
    <WeightOfSetOfCarriages>120</WeightOfSetOfCarriages>
    <LengthOfSetOfCarriages>60</LengthOfSetOfCarriages>
    <TractionDetails>
      <LocoTypeNumber>**185</LocoTypeNumber>
      <TractionMode>11</TractionMode>
    </TractionDetails>
    <TrainMaxSpeed>100</TrainMaxSpeed>
    <HighestPlannedSpeed>100</HighestPlannedSpeed>
    <EmergencyBrakeOverride>false</EmergencyBrakeOverride>
    <MinBrakedWeightPercent>78</MinBrakedWeightPercent>
  </PlannedTrainTechnicalData>
  <CombinedTrafficLoadProfile>
    <P1>70</P1>
    <P2>400</P2>
    <C1>70</C1>
    <C2>400</C2>
  </CombinedTrafficLoadProfile>
</PlannedTrainData>
<TrainActivity>
  <TrainActivityType>0001</TrainActivityType>
</TrainActivity>
<OnDemandPath>false</OnDemandPath>
<PreArrangedPath>false</PreArrangedPath>
</PlannedJourneyLocation>
<PlannedJourneyLocation JourneyLocationTypeCode="08">
  <CountryCodeISO>de</CountryCodeISO>
  <LocationPrimaryCode>16691</LocationPrimaryCode>
  <PrimaryLocationName>Mainz Gbf</PrimaryLocationName>
  <TimingAtLocation>
    <Timing TimingQualifierCode="ALA">
      <Time>12:00:00</Time>
      <Offset>0</Offset>
    </Timing>
  </TimingAtLocation>
  <FreeTextField>note:path might be affected by works, modifications are possible
7 hrs, 2 stops, 45 min</FreeTextField>
  <ResponsibleApplicant>2180</ResponsibleApplicant>
  <ResponsibleRU>2180</ResponsibleRU>
  <ResponsibleIM>80</ResponsibleIM>
  <PlannedTrainData>
    <TrainType>2</TrainType>

```


6. Conclusion

The cases provided in this document serve as the basis for further development of applications that use ObjectInfoMessage-s. The further combinations of different operations in the message are possible, and depend on the particular situations and agreements between the partners.