REJSEPLANEN

DOKUMENTATION

Rejseplanen A/S has an open API with access for developers and strategic partners.

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This paper provides some examples on how to use the interface and documents XSD-schemas of all service responses from Rejseplanen available at the web location provided. If you have any questions about how to use the services described in this document, please feel free to contact us at labs@rejseplanen.dk

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0 Scope of the system

In the future system the system will consist of an XML gateway server as a technical interface towards third-party systems including management of access rights and quota management for the different clients and a range of simple but powerful set of methods to access timetable information from the HAFAS server.

It will be possible to generate an access code for every client, configure a quota for this access id and also to deactivate any access id immediately.

In a first phase we deliver the public interface without quota and access right management. It is proposed to install the service on a separate system to prevent unwished side effects on the productive version of the journey planner.

Due to the fact, that there exists no quota management so far, please use the interfaces with care and avoid any unneeded load.

1 The interface

1.1 Introduction

The public interface is implemented as a ReST[1] (**Re**presentational **S**tate **T**ransfer) interface which provides different methods for the different functionalities of the journey planner, which are the following services:

- Location
- Trip
- DepartureBoard
- ArrivalBoard
- MultiDepartureBoard
- JourneyDetail

[1] See http://rest.elkstein.org/ for a tutorial on ReST interfaces.

While Location, Trip, DepartureBoard, ArrvialBoard and MultiDepartureBoard can be called directly the JourneyDetail-Method can only be called by a reference given in a result of the Trip, DepartureBoard, ArrivalBoard or MultiDepartureBoard services.

The system only implements read-only GET requests which are called by given service URLs and multiple GET parameters to specify the requested journey planner information. The parameter values need to be in ISO-8859-1 URL encoded. The result of each request will be delivered as an XML response. The result XML is UTF-8 encoded. If the encoding of URL parameters is not right, the behaviour of the system might deliver unexpected results.

From now on it is assumed, that you have been provided with a base URL of the HAFAS system. The following documentation of the different requests are described based on this given base url *<baseurl>*.

1.2 General principles

There are some general principles which are valid for the different services which are described in this section.

1.2.1 Coordinates

Coordinates are always in the WGS84 system. All coordinates a represented as integer values x and y where the coordinate value is multiplied with 1,000,000.

1.2.2 Date and time formats

Dates are always represented in the format DD.MM.YY. This applies both for request parameters as for dates in responses. Times are always represented in the format HH:MM in 24h nomenclature.

1.2.3 Stateless service vs. data dependency

All services of the provided interface are stateless as it is required for a ReST protocol. But this has its limitation concerning the journey planners timetable data. As soon as the timetable data is exchanged (in most cases once a week) IDs of stops/stations are not necessary valid anymore. The same applies for reference URLs to retrieve journeyDetails. The storage of stop/station IDs and reference URLs to journeyDetails for a longer period except the current user session is not recommended therefore and can only be done on own risk for undetermined behaviour when reusing these ids or references.

1.2.4 Route index

A route is the list of stops/stations where a vehicle like a train or bus stops. Every stop/station on a route has its own index which can be used a reference. This index is also used to identify distinctively if the same stop/station if it is contained several times in one route.

1.2.5 Realtime information

Realtime information will be included in the service as far as it is available in the web based journey planner. It is always delivered in addition to the planned departures and arrivals. For Rejseplanen there is one exception which is the Metro in Copenhagen. Due to the fact, that the metro does not deliver the realtime information by standard interfaces it is not integrated in the journey planner but shown by a by-pass solution in the web based interfaces. Therefore the realtime information is not available by this interface so far.

1.2.6 Response Format

The interface returns responses either in XML (default) or JSON format.

In order to request a JSON response you have to append the following parameter to each call of the interface: **`format=json`**.

The JSON content is generated by converting the xml content to JSON automatically. The conversion is done by the following simple rules:

- Element names become object properties
- Text (PCDATA) becomes an object property with name "$"

  <a>foo</a> becomes { "a": { "$" : "foo" } }
- Nested elements become nested properties

  <a><b>foo</b><c>foo</c></a>

  becomes

  { "a": { "b" : { "$": "foo" }, "c": { "$": "foo"} } }
- If there are multiple elements with the same name the JSON code contains an array for these element.

  <a><b>foo1</b><b>foo2</b></a>

  becomes

  { "a": { "b" : [{"$": foo1" }, {"$": "foo2" }] } }

- Attribute names become object properties

  <a atb="foo1">foo2</a>

  becomes

  { "a": { "atb" : "foo1", "$" : "foo2" } }

The following example shows a trip in a xml response and the resulting conversion to JSON:

XML:

```
<Trip valid=”true”>
 <Leg name="Metro M1" type="M">
  <Origin name="Vestamager st (Metro) " type="ST" routeIdx="0" time="15:38" date="16.09.12" />
  <Destination name=" Ørestad st (Metro)" " type="ST" routeIdx="1" time="15:39" date="16.09.12" />
 </Leg>
</Trip>
```

JSON:

```
"Trip": {
        "Leg": {
                "name": "Re 4324",
                "type": "REG",
                "Origin": {
                        "name": "Valby st ",
                        "type": "ST",
                        "routeIdx": "8",
                        "time": "12:05",
                        "track": "1",
                        "date": "16.08.12"

                                },
                "Destination": {
                        "name": "Kobenhavn H ",
                        "type": "ST",
                        "routeIdx": "9",
            "time": "16:09",
            "date": "16.08.12"
                {
        }
}
```

1.3 Services

1.3.1 Location service

The `location` service can be used to perform a pattern matching of a user input and to retrieve a list of possible matches in the journey planner database. Possible matches might be stops/stations, points of interest and addresses.

The service has only one GET parameter which is called `input`. This parameter contains a string with the user input. The result is a list of possible matches (locations) where the user might pick one entry to perform a trip request with this location as origin or destination or to ask for a departure board or arrival board of this location (stops/stations only) .

The URL to call the service is the following:

`http://<baseurl>/location?input=user%20input`

The response format of a location is defined in `hafasRestLocation.xsd` (see also 1.4.1 for further details).

1.3.2 Trip service

The `trip` service calculates a trip from a specified origin to a specified destination. These might be stop/station IDs or coordinates based on addresses and points of interest validated by the location service or coordinates freely defined by the client.

Both origin and destination are mandatory parameters for the trip service.

The parameters are named either `originId` or `originCoordX`, `originCoordY`, and `originCoordName`. For the destination the parameters are named either `destId` or `destCoordX`, `destCoordY` and `destCoordName`.

It is possible to define a via stop/station. This forces the journey planner to search for trips which pass the defined station. The parameter is called `viaId`.

The departure time and date are defined with the parameters `date` and `time`. If the date is not set the current date will be used (server time). If the parameter time is not set the current server time will be used to perform the request. It is possible to search for latest arrival time instead of departure time by adding the parameter `searchForArrival=1.`

It is possible to switch off specific means of transport (currently train, bus and metro) by using one of the following optional parameters:

- `useTog=0`
- `useBus=0`
- `useMetro=0`

The default value is, that all means of transport are switched on (value 1). If no parameter is set this default value applies.

If you like to get only trips which allow carriage of bicycles you have to add the parameter `useBicycle=1.` The default is 0 (no restriction).

If `useBicycle=1` is used you can specify the distances for bike use at your departure- and and destination location with the following parameters.

`maxWalkingDistanceDep=<distance in meter>` and

`maxWalkingDistanceDest=<distance in meter>`

The default is 2000 (restrictions are max 20.000 min 500). If one of these parameter is not set this default value applies.

If `useBicycle=0` is used or `useBicycle` is not defined you can specify the distances for walks at your departure- and and destination location with the following parameters.

`maxCyclingDistanceDep=<distance in meter>` and

`maxCyclingDistanceDest=<distance in meter>`

The default is 5000 (restrictions are max 20.000 min 500). If one of these parameter is not set this default value applies.

A trip request for a trip from Copenhagen main station to some coordinate on the 19th of September in 2010 at 7:02pm excluding busses as means of transport looks like this:

`http://<baseurl>/trip?originId=8600626&destCoordX=<xInteger>&destCoordY=<yInteger>&destCoordName=<NameOfDestination>&date=19.09.10&time=07:02&useBus=0`

As a result the service returns an XML with the calculated trip with base information for every leg of the found trips. This will include arrival and departure stop/station, arrival and departure time (incl. realtime)

1.3.3 Stationboard services

The station board can be retrieved by a the service `departureBoard`. This method will return the next 20 departures (or less if not existing) from a given point in time.

The service can only be called for stops/stations by using according ID retrieved by the `location` method. The parameter is called `id`. The date and time are defined with the parameters `date` and `time`. If you want your search to start x minutes from now, you can enter the parameter `offsetTime=<number of minutes>` instead of `time`.

It is possible to switch off certain means of transport by using one or several of the following optional switches

- `useTog=0`
- `useBus=0`
- `useMetro=0`

The default value of these switches is 1 (on) which also applies if the parameter isn't defined at all.

A departure board for Copenhagen main station for the next 20 departures on 19th September, 2010 at 07:02am excluding all busses can be retrieved by calling

http://<baseurl>/departureBoard?id=8600626&date=19.09.10&time=07:02&useBus=0

As a response the service will return an XML according to `hafasRestDepartureBoard.xsd`. This will contain a list of departures with train/line number, type of transport, departure times (incl. realtime), departure stop/stations (might be different from requested stop), direction text and a track information if available. Every departure will also contain a reference to the journey detail service.

In addition to departure boards the service `arrivalBoard` delivers arriving journeys at a specified stop. The parameters are identical to the parameters of the departureBoard service.

As a response the service will return an XML according to `hafasRestArrivalBoard.xsd`. This will contain a list of arrival with train/line number, type of transport, departure times (incl. realtime), departure stop/stations (might be different from requested stop), the name of the origin stop and a track information if available. Every arrival will also contain a reference to the journey detail service.

1.3.4 Multi departure board service

The multi departure board is a combined departure board for up to 10 different stops. It can be retrieved by a service called `multiDepartureBoard`. This method will return the next 20 departures (or less if not existing) of the defined stops from a given point in time.

The service can only be called for stops/stations by using their IDs retrieved by the `location` method. The parameters for defining the stops are called `id1`, …, `id10`. At least `id1` must be defined as a parameter for a valid request. The date and time are defined with the parameters `date` and `time`. If you want your search to start x minutes from now, you can enter the parameter `offsetTime=<number of minutes>` instead of `time.`

It is possible to switch off certain means of transport by using one or several of the following optional switches

- `useTog=0`
- `useBus=0`
- `useMetro=0`

The default value of these switches is 1 (on) which also applies if the parameter isn't defined at all.

A departure board for Copenhagen main station and for the stop Forum st for the next 20 departures on 19th September, 2010 at 07:02am excluding all busses can be retrieved by calling

`http://<baseurl>/multiDepartureBoard?id1=8600626&id2=5548&date=19.04.11&time=07:02&useTog=0`

As a response the service will return an XML according to `hafasRestMultiDepartureBoard.xsd`. This will contain a list of departures with train/line number, type of transport, departure times (incl. realtime), departure stop/stations, direction text and a track information if available. Every departure will also contain a reference to the journey detail service.

1.3.5 Stops nearby service

The stops nearby service will deliver all stops within a radius of a given coordinate.

The parameters are named `coordX`, `coordY` for the coordinate and `maxRadius` and `maxNumber` to limit the result list. The maximum radius is defined in meters. The maximum number limits the length of the returned list accordingly.

A request to ask for maximum 30 stops near a given coordinate and a radius of maximum 1000m looks like follows:

`http://<baseurl>/stopsNearby?coordX=12565796&coordY=55673063&maxRadius=1000&maxNumber=30`

As a response the service will return an XML according to `hafasRestStopsNearby.xsd.` This will contain a location list with stop location entries. Each stop location contains the name of the station/stop, the coordinate, the id and the distance from the request coordinate in meters. All distances are as the crow flies and not routed.

1.3.6 Journey detail service

The `journeyDetail` service will deliver information about the complete route of a vehicle. This service can't be called directly but only by reference URLs in a result of a `trip` or `departureBoard` request. It contains a list of all stops/stations of this journey including all departure and arrival times (with realtime data if available) and additional information like specific attributes about facilities and other texts.

The response will be returned as XML according to the format described in `hafasRestJourneyDetails.xsd.`

1.4 Response formats

All services return their responses in XML format. Every response is defined in a separate XSD file. The following sections will describe the responses more in detail. The XML formats might be enhanced in the future so the implementation of the XML parsing should be implemented in view of future possible changes.

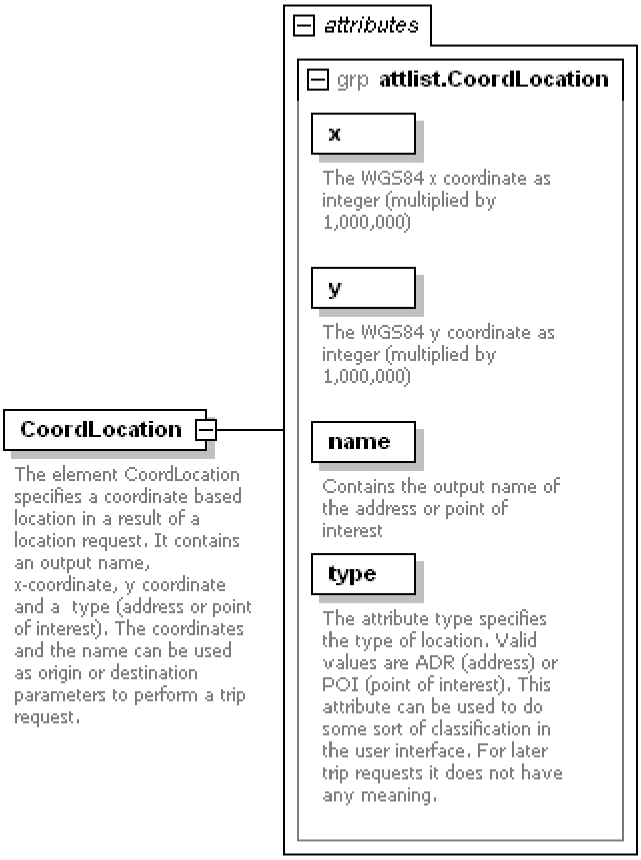
1.4.1 Location response

The location consists of a list of entries, which are either stops/stations or named coordinates. The root element of the response is `LocationList`.

Schema **hafasRestLocation.xsd**

element **CoordLocation**

diagram


attributes
grp attlist.CoordLocation
x
The WGS84 x coordinate as integer (multiplied by 1,000,000)
y
The WGS84 y coordinate as integer (multiplied by 1,000,000)
name
Contains the output name of the address or point of interest
type
The attribute type specifies the type of location. Valid values are ADR (address) or POI (point of interest). This attribute can be used to do some sort of classification in the user interface. For later trip requests it does not have any meaning.
CoordLocation
The element CoordLocation specifies a coordinate based location in a result of a location request. It contains an output name, x-coordinate, y coordinate and a type (address or point of interest). The coordinates and the name can be used as origin or destination parameters to perform a trip request.

used by element **LocationList**

attributes

Name	Type	Use	Default	Fixed
x	**xs:int**	required		
y	**xs:int**	required		
name	**xs:string**	required		
type		required		

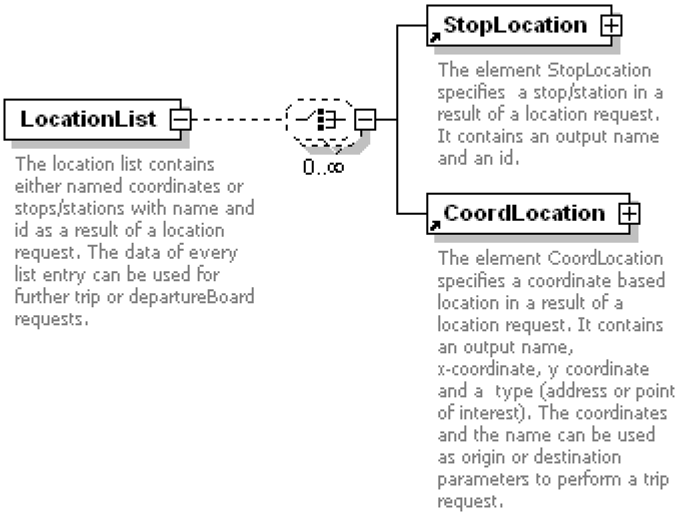
source

```
<xs:element name="CoordLocation">
 <xs:annotation>
```

```
  <xs:documentation>The element CoordLocation specifies a coordinate based location in a result of a location request. It contains an output name, x-coordinate, y coordinate and a  type (address or point of interest). The coordinates and the name can be used as origin or destination parameters to perform a trip request.
      </xs:documentation>
 </xs:annotation>
 <xs:complexType>
  <xs:attributeGroup ref="attlist.CoordLocation"/>
 </xs:complexType>
</xs:element>
```

element **LocationList**

diagram



LocationList
The location list contains either named coordinates or stops/stations with name and id as a result of a location request. The data of every list entry can be used for further trip or departureBoard requests.
0..∞
StopLocation
The element StopLocation specifies a stop/station in a result of a location request. It contains an output name and an id.
CoordLocation
The element CoordLocation specifies a coordinate based location in a result of a location request. It contains an output name, x-coordinate, y coordinate and a type (address or point of interest). The coordinates and the name can be used as origin or destination parameters to perform a trip request.

children **StopLocation** **CoordLocation**

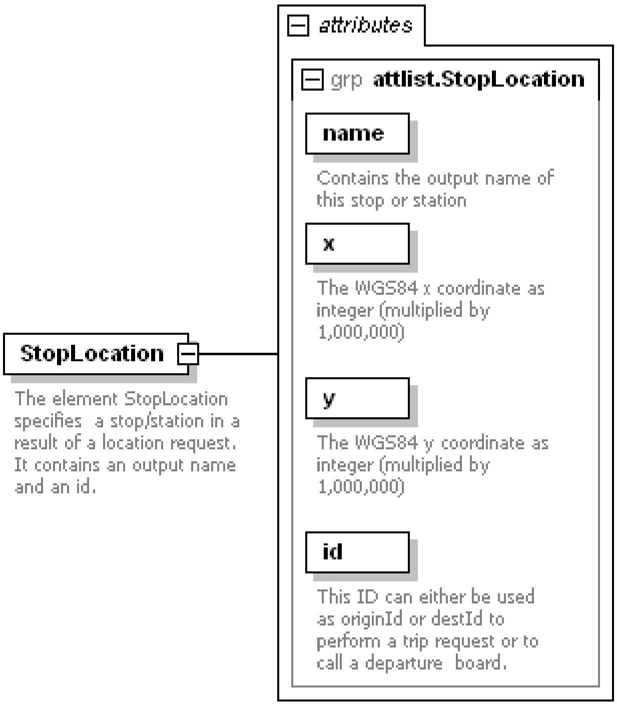
source

```
<xs:element name="LocationList">
 <xs:annotation>
  <xs:documentation>The location list contains either named coordinates or stops/stations with name and id as a result of a location request. The data of every list entry can be used for further trip or departureBoard requests.
        </xs:documentation>
 </xs:annotation>
 <xs:complexType>
  <xs:choice minOccurs="0" maxOccurs="unbounded">
   <xs:element ref="StopLocation"/>
   <xs:element ref="CoordLocation"/>
```

```
      </xs:choice>
    </xs:complexType>
  </xs:element>
```

element **StopLocation**

diagram


attributes
grp attlist.StopLocation
name
Contains the output name of this stop or station
x
The WGS84 x coordinate as integer (multiplied by 1,000,000)
y
The WGS84 y coordinate as integer (multiplied by 1,000,000)
id
This ID can either be used as originId or destId to perform a trip request or to call a departure board.
StopLocation
The element StopLocation specifies a stop/station in a result of a location request. It contains an output name and an id.

used by element **LocationList**

attributes

Name	Type	Use	Default	Fixed
name	**xs:string**	required		
x	**xs:int**	required		
y	**xs:int**	required		
id	**xs:string**	required		

source

```
<xs:element name="StopLocation">
  <xs:annotation>
    <xs:documentation>The element StopLocation specifies  a stop/station in a result of a location request. It contains an output name and an id.</xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:attributeGroup ref="attlist.StopLocation"/>
  </xs:complexType>
```

```
</xs:element>
```

attributeGroup **attlist.CoordLocation**

used by element **CoordLocation**

attributes

Name	Type	Use	Default	Fixed
x	**xs:int**	required		
y	**xs:int**	required		
name	**xs:string**	required		
type		required		

source

```
<xs:attributeGroup name="attlist.CoordLocation">
 <xs:attribute name="x" type="xs:int" use="required">
  <xs:annotation>
   <xs:documentation>The WGS84 x coordinate as integer (multiplied by 1,000,000)
        </xs:documentation>
  </xs:annotation>
 </xs:attribute>
 <xs:attribute name="y" type="xs:int" use="required">
  <xs:annotation>
   <xs:documentation>The WGS84 y coordinate as integer (multiplied by 1,000,000)
        </xs:documentation>
  </xs:annotation>
 </xs:attribute>
 <xs:attribute name="name" type="xs:string" use="required">
  <xs:annotation>
   <xs:documentation>Contains the output name of the address or point of interest</xs:documentation>
  </xs:annotation>
 </xs:attribute>
 <xs:attribute name="type" use="required">
  <xs:annotation>
   <xs:documentation>The attribute type specifies the type of location. Valid values are ADR (address) or POI (point
of interest). This attribute can be used to do some sort of classification in the user interface. For later trip requests it
```

```
does not have any meaning.
          </xs:documentation>
    </xs:annotation>
    <xs:simpleType>
      <xs:restriction base="xs:string">
        <xs:enumeration value="ADR"/>
        <xs:enumeration value="POI"/>
      </xs:restriction>
    </xs:simpleType>
  </xs:attribute>
</xs:attributeGroup>
```

attributeGroup **attlist.StopLocation**

used by element **StopLocation**

attributes

Name	Type	Use	Default	Fixed
name	**xs:string**	required		
x	**xs:int**	required		
y	**xs:int**	required		
id	**xs:string**	required		

source

```
<xs:attributeGroup name="attlist.StopLocation">
  <xs:attribute name="name" type="xs:string" use="required">
    <xs:annotation>
      <xs:documentation>Contains the output name of this stop or station</xs:documentation>
    </xs:annotation>
  </xs:attribute>
  <xs:attribute name="x" type="xs:int" use="required">
    <xs:annotation>
      <xs:documentation>The WGS84 x coordinate as integer (multiplied by 1,000,000)
          </xs:documentation>
    </xs:annotation>
  </xs:attribute>
```

```
 <xs:attribute name="y" type="xs:int" use="required">

  <xs:annotation>

   <xs:documentation>The WGS84 y coordinate as integer (multiplied by 1,000,000)

        </xs:documentation>

  </xs:annotation>

 </xs:attribute>

 <xs:attribute name="id" type="xs:string" use="required">

  <xs:annotation>

   <xs:documentation>This ID can either be used as originId or destId to perform a trip request or to call a departure  board.</xs:documentation>

  </xs:annotation>

 </xs:attribute>

</xs:attributeGroup>
```

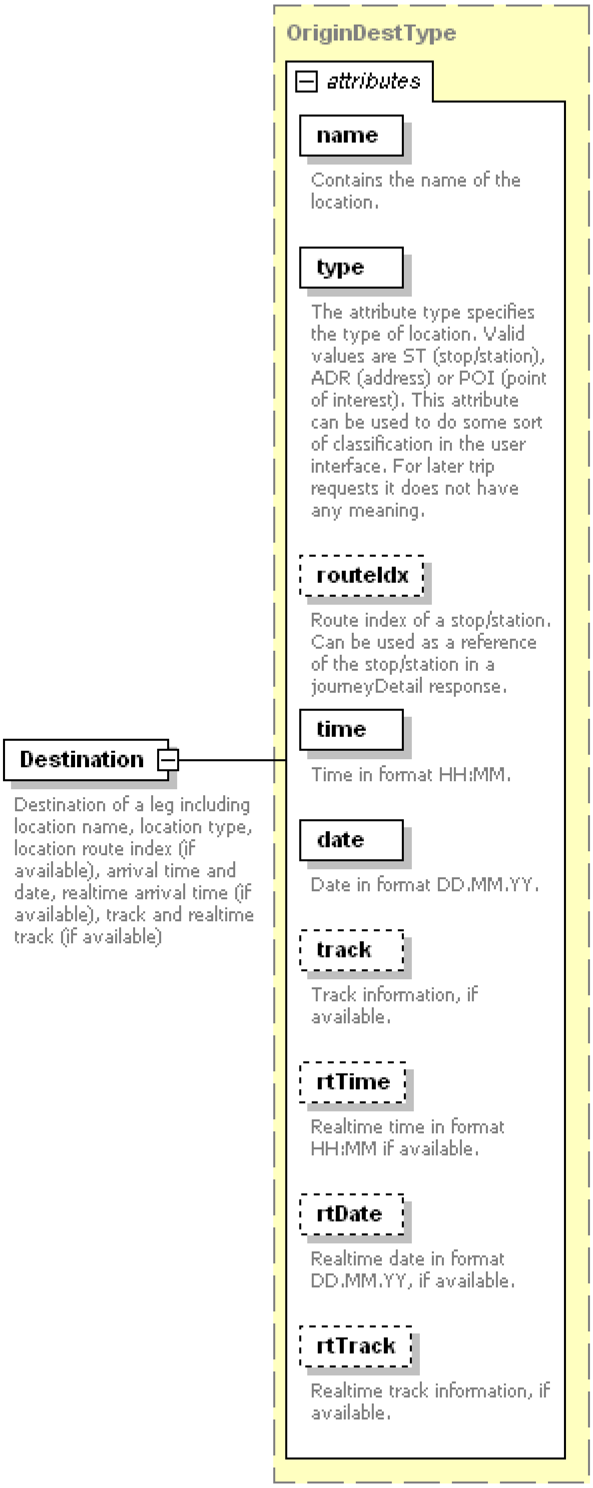
1.4.2 Trip response

The trip response consists of a list of trips. Every trip has one to many legs with an origin and destination. The root element of the response is `TripList`.

Schema **hafasRestTrip.xsd**

element **Destination**

diagram


OriginDestType
attributes
name
Contains the name of the location.
type
The attribute type specifies the type of location. Valid values are ST (stop/station), ADR (address) or POI (point of interest). This attribute can be used to do some sort of classification in the user interface. For later trip requests it does not have any meaning.
routeIdx
Route index of a stop/station. Can be used as a reference of the stop/station in a journeyDetail response.
time
Time in format HH:MM.
date
Date in format DD.MM.YY.
track
Track information, if available.
rtTime
Realtime time in format HH:MM if available.
rtDate
Realtime date in format DD.MM.YY, if available.
rtTrack
Realtime track information, if available.
Destination
Destination of a leg including location name, location type, location route index (if available), arrival time and date, realtime arrival time (if available), track and realtime track (if available)

type **OriginDestType**

used by element **Leg**

attributes

Name	Type	Use	Default	Fixed
name	**xs:string**	required		

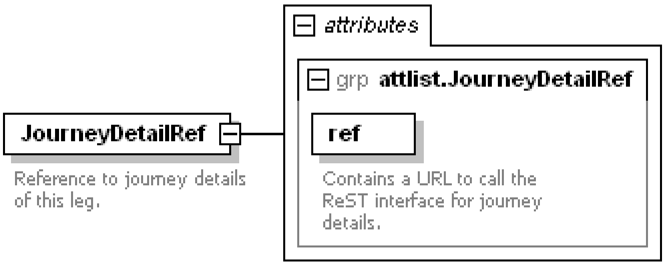
type		required		
routeIdx	**xs:integer**	optional		
time	**xs:string**	required		
date	**xs:string**	required		
track	**xs:string**	optional		
rtTime	**xs:string**	optional		
rtDate	**xs:string**	optional		
rtTrack	**xs:string**	optional		

source

```
<xs:element name="Destination" type="OriginDestType">
 <xs:annotation>
  <xs:documentation>Destination of a leg including location name, location type, location route index (if available), arrival time and date, realtime arrival time (if available), track and realtime track (if available)</xs:documentation>
 </xs:annotation>
</xs:element>
```

element **JourneyDetailRef**

diagram



JourneyDetailRef
Reference to journey details of this leg.
attributes
grp attlist.JourneyDetailRef
ref
Contains a URL to call the ReST interface for journey details.

used by

element	[Leg]

attributes

Name	Type	Use	Default	Fixed
ref	**xs:string**	required		

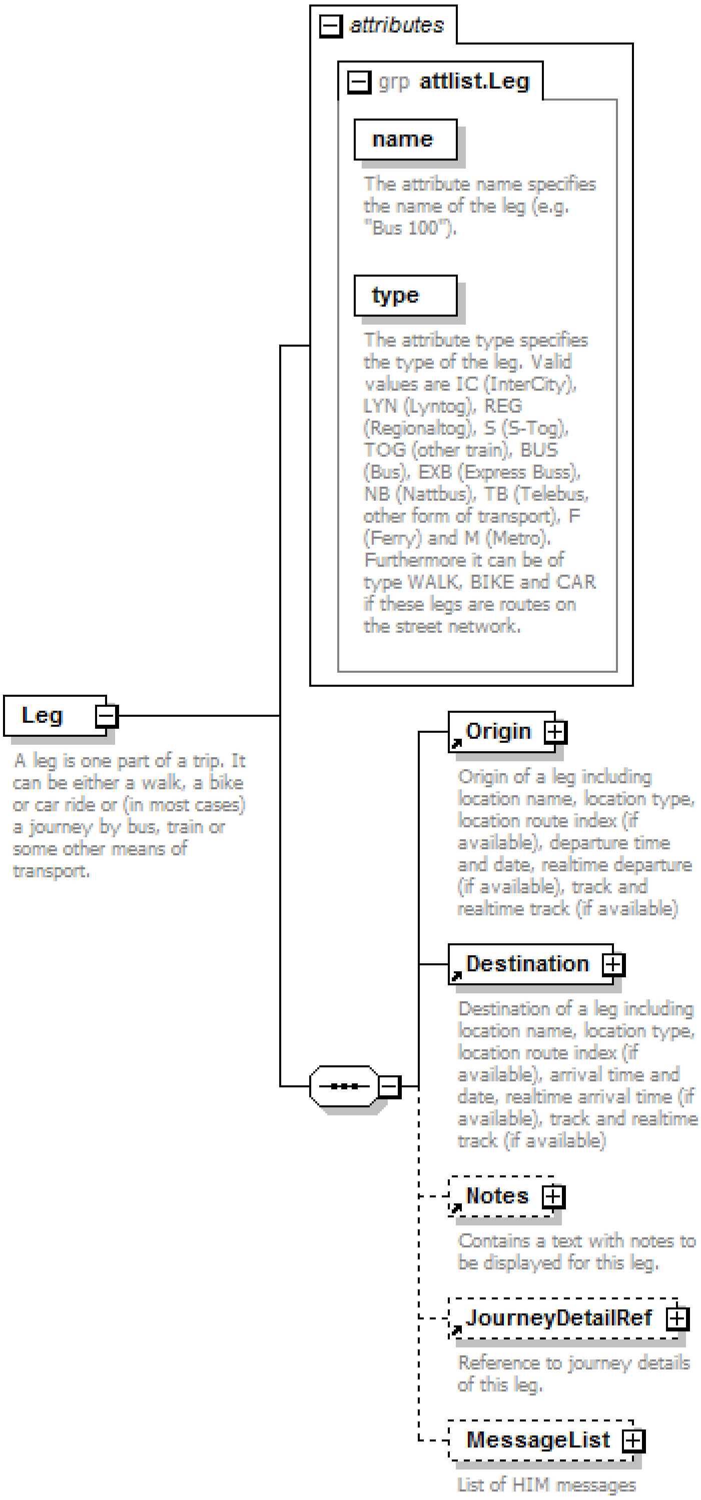
source

```
<xs:element name="JourneyDetailRef">
 <xs:annotation>
  <xs:documentation>Reference to journey details of this leg.</xs:documentation>
 </xs:annotation>
 <xs:complexType>
  <xs:attributeGroup ref="attlist.JourneyDetailRef"/>
 </xs:complexType>
```

</xs:element>

element **Leg**

diagram


attributes
grp attlist.Leg
name
The attribute name specifies the name of the leg (e.g. "Bus 100").
type
The attribute type specifies the type of the leg. Valid values are IC (InterCity), LYN (Lyntog), REG (Regionaltog), S (S-Tog), TOG (other train), BUS (Bus), EXB (Express Buss), NB (Nattbus), TB (Telebus, other form of transport), F (Ferry) and M (Metro). Furthermore it can be of type WALK, BIKE and CAR if these legs are routes on the street network.
Leg
A leg is one part of a trip. It can be either a walk, a bike or car ride or (in most cases) a journey by bus, train or some other means of transport.
Origin
Origin of a leg including location name, location type, location route index (if available), departure time and date, realtime departure (if available), track and realtime track (if available)
Destination
Destination of a leg including location name, location type, location route index (if available), arrival time and date, realtime arrival time (if available), track and realtime track (if available)
Notes
Contains a text with notes to be displayed for this leg.
JourneyDetailRef
Reference to journey details of this leg.
MessageList
List of HIM messages

children **Origin** **Destination** **Notes** **JourneyDetailRef** **MessageList**

used by element **Trip**

attributes

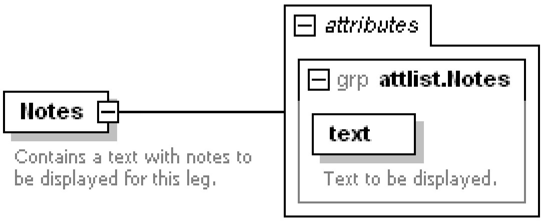
Name	Type	Use	Default	Fixed
name		required		
type		required		

source

```
<xs:element name="Leg">
 <xs:annotation>
  <xs:documentation>A leg is one part of a trip. It can be either a walk, a bike or car ride or (in most cases) a journey by bus, train or some other means of transport.
      </xs:documentation>
 </xs:annotation>
 <xs:complexType>
  <xs:sequence>
   <xs:element ref="Origin"/>
   <xs:element ref="Destination"/>
   <xs:element ref="Notes" minOccurs="0"/>
   <xs:element ref="JourneyDetailRef" minOccurs="0"/>
   <xs:element name="MessageList" minOccurs="0">
  </xs:sequence>
  <xs:attributeGroup ref="attlist.Leg"/>
 </xs:complexType>
</xs:element>
```

element **Notes**

diagram



used by

element **Leg**

attributes

Name	Type	Use	Default	Fixed
text	**xs:string**	required		

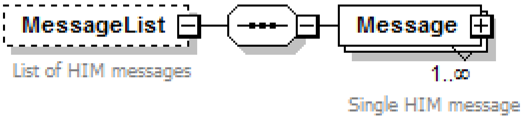
source

```
<xs:element name="Notes">
```

```
<xs:annotation>
  <xs:documentation>Contains a text with notes to be displayed for this leg.</xs:documentation>
</xs:annotation>
<xs:complexType>
  <xs:attributeGroup ref="attlist.Notes"/>
</xs:complexType>
</xs:element>
```

	Name	Type	Use	Default	Fixed
attributes					
	url	**xs:string**	required		
	text	**xs:string**	optional		
Source					

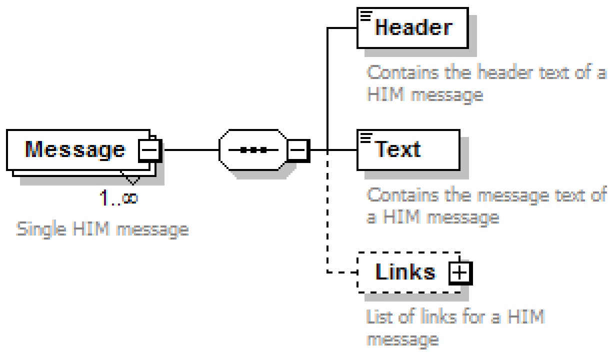
element **Leg/MessageList**

diagram	 MessageList List of HIM messages Message 1..∞ Single HIM message
properties	isRef 0 minOcc 0 maxOcc 1 content complex
children	[Message](#)
annotation	documentation List of HIM messages

source	<xs:element name="MessageList" minOccurs="0">
	 <xs:annotation>
	  <xs:documentation>List of HIM messages</xs:documentation>
	 </xs:annotation>
	 <xs:complexType>
	  <xs:sequence>
	   <xs:element name="Message" maxOccurs="unbounded">
	    <xs:annotation>
	     <xs:documentation>Single HIM message</xs:documentation>
	    </xs:annotation>
	    <xs:complexType>
	     <xs:sequence>
	      <xs:element name="Header" type="xs:string">
	       <xs:annotation>
	        <xs:documentation>Contains the header text of a HIM message</xs:documentation>

```
       </xs:annotation>
      </xs:element>
      <xs:element name="Text" type="xs:string">
       <xs:annotation>
        <xs:documentation>Contains the message text of a HIM message</xs:documentation>
       </xs:annotation>
      </xs:element>
      <xs:element name="Links" minOccurs="0">
       <xs:annotation>
        <xs:documentation>List of links for a HIM message</xs:documentation>
       </xs:annotation>
       <xs:complexType>
        <xs:sequence>
         <xs:element name="Link" maxOccurs="unbounded">
          <xs:annotation>
           <xs:documentation>Single link of a HIM message</xs:documentation>
          </xs:annotation>
          <xs:complexType>
           <xs:attribute name="url" use="required">
            <xs:annotation>
             <xs:documentation>URL for a link</xs:documentation>
            </xs:annotation>
           </xs:attribute>
           <xs:attribute name="text" use="optional">
            <xs:annotation>
             <xs:documentation>Linktext for a link</xs:documentation>
            </xs:annotation>
           </xs:attribute>
          </xs:complexType>
         </xs:element>
        </xs:sequence>
       </xs:complexType>
      </xs:element>
     </xs:sequence>
    </xs:complexType>
   </xs:element>
  </xs:sequence>
 </xs:complexType>
</xs:element>
```

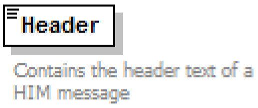
element **Leg/MessageList/Message**

diagram	 Message 1..∞ Single HIM message Header Contains the header text of a HIM message Text Contains the message text of a HIM message Links List of links for a HIM message
properties	isRef 0 minOcc 1 maxOcc unbounded content complex
children	[Header](#) [Text](#) [Links](#)
annotation	documentation Single HIM message
source	

```
<xs:element name="Message" maxOccurs="unbounded">
 <xs:annotation>
  <xs:documentation>Single HIM message</xs:documentation>
 </xs:annotation>
 <xs:complexType>
  <xs:sequence>
   <xs:element name="Header" type="xs:string">
    <xs:annotation>
     <xs:documentation>Contains the header text of a HIM message</xs:documentation>
    </xs:annotation>
   </xs:element>
   <xs:element name="Text" type="xs:string">
    <xs:annotation>
     <xs:documentation>Contains the message text of a HIM message</xs:documentation>
    </xs:annotation>
   </xs:element>
   <xs:element name="Links" minOccurs="0">
    <xs:annotation>
     <xs:documentation>List of links for a HIM message</xs:documentation>
    </xs:annotation>
    <xs:complexType>
     <xs:sequence>
      <xs:element name="Link" maxOccurs="unbounded">
       <xs:annotation>
        <xs:documentation>Single link of a HIM message</xs:documentation>
       </xs:annotation>
       <xs:complexType>
        <xs:attribute name="url" use="required">
         <xs:annotation>
```

```
            <xs:documentation>URL for a link</xs:documentation>
          </xs:annotation>
        </xs:attribute>
        <xs:attribute name="text" use="optional">
          <xs:annotation>
            <xs:documentation>Linktext for a link</xs:documentation>
          </xs:annotation>
        </xs:attribute>
      </xs:complexType>
    </xs:element>
  </xs:sequence>
  </xs:complexType>
 </xs:element>
 </xs:sequence>
 </xs:complexType>
</xs:element>
```

element **Leg/MessageList/Message/Header**

diagram	
type	**xs:string**
properties	isRef 0 content simple
annotation	documentation Contains the header text of a HIM message
source	<xs:element name="Header" type="xs:string"> <xs:annotation> <xs:documentation>Contains the header text of a HIM message</xs:documentation> </xs:annotation> </xs:element>

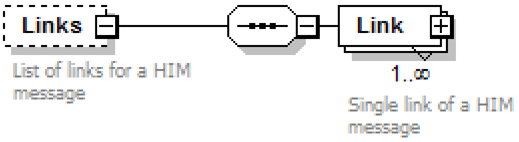
element **Leg/MessageList/Message/Text**

diagram	
type	**xs:string**
properties	isRef 0

	content simple
annotation	documentation Contains the message text of a HIM message

source	`<xs:element name="Text" type="xs:string">`
	`  <xs:annotation>`
	`    <xs:documentation>Contains the message text of a HIM message</xs:documentation>`
	`  </xs:annotation>`
	`</xs:element>`

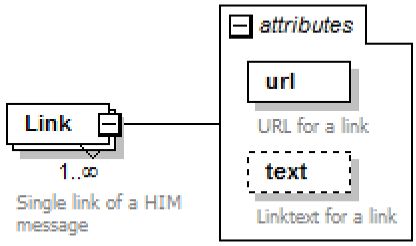
element **Leg/MessageList/Message/Links**

diagram	 Links List of links for a HIM message Link 1..∞ Single link of a HIM message
properties	isRef 0 minOcc 0 maxOcc 1 content complex
children	**Link**
annotation	documentation List of links for a HIM message

source	`<xs:element name="Links" minOccurs="0">`
	`  <xs:annotation>`
	`    <xs:documentation>List of links for a HIM message</xs:documentation>`
	`  </xs:annotation>`
	`  <xs:complexType>`
	`    <xs:sequence>`
	`      <xs:element name="Link" maxOccurs="unbounded">`
	`        <xs:annotation>`
	`          <xs:documentation>Single link of a HIM message</xs:documentation>`
	`        </xs:annotation>`
	`        <xs:complexType>`
	`          <xs:attribute name="url" use="required">`
	`            <xs:annotation>`
	`              <xs:documentation>URL for a link</xs:documentation>`
	`            </xs:annotation>`
	`          </xs:attribute>`
	`          <xs:attribute name="text" use="optional">`
	`            <xs:annotation>`
	`              <xs:documentation>Linktext for a link</xs:documentation>`
	`            </xs:annotation>`

<table>
<tr><td></td><td>
```
    </xs:attribute>
   </xs:complexType>
  </xs:element>
 </xs:sequence>
</xs:complexType>
</xs:element>
```
</td></tr>
</table>

element **Leg/MessageList/Message/Links/Link**

<table>
<tr><td>diagram</td><td>


</td></tr>
<tr><td>properties</td><td>
<table>
<tr><td>isRef</td><td>0</td></tr>
<tr><td>minOcc</td><td>1</td></tr>
<tr><td>maxOcc</td><td>unbounded</td></tr>
<tr><td>content</td><td>complex</td></tr>
</table>
</td></tr>
<tr><td>attributes</td><td>
<table>
<tr><td>Name</td><td>Type</td><td>Use</td><td>Default</td><td>Fixed</td><td>annotation</td></tr>
<tr><td>url</td><td></td><td>required</td><td></td><td></td><td>documentation
URL for a link</td></tr>
<tr><td>text</td><td></td><td>optional</td><td></td><td></td><td>documentation
Linktext for a link</td></tr>
</table>
</td></tr>
<tr><td>annotation</td><td>documentation
Single link of a HIM message</td></tr>
<tr><td>source</td><td>
```
<xs:element name="Link" maxOccurs="unbounded">
 <xs:annotation>
  <xs:documentation>Single link of a HIM message</xs:documentation>
 </xs:annotation>
 <xs:complexType>
  <xs:attribute name="url" use="required">
   <xs:annotation>
    <xs:documentation>URL for a link</xs:documentation>
   </xs:annotation>
  </xs:attribute>
  <xs:attribute name="text" use="optional">
   <xs:annotation>
    <xs:documentation>Linktext for a link</xs:documentation>
   </xs:annotation>
```
</td></tr>
</table>

	</xs:attribute> </xs:complexType> </xs:element>

attribute **Leg/MessageList/Message/Links/Link/@url**

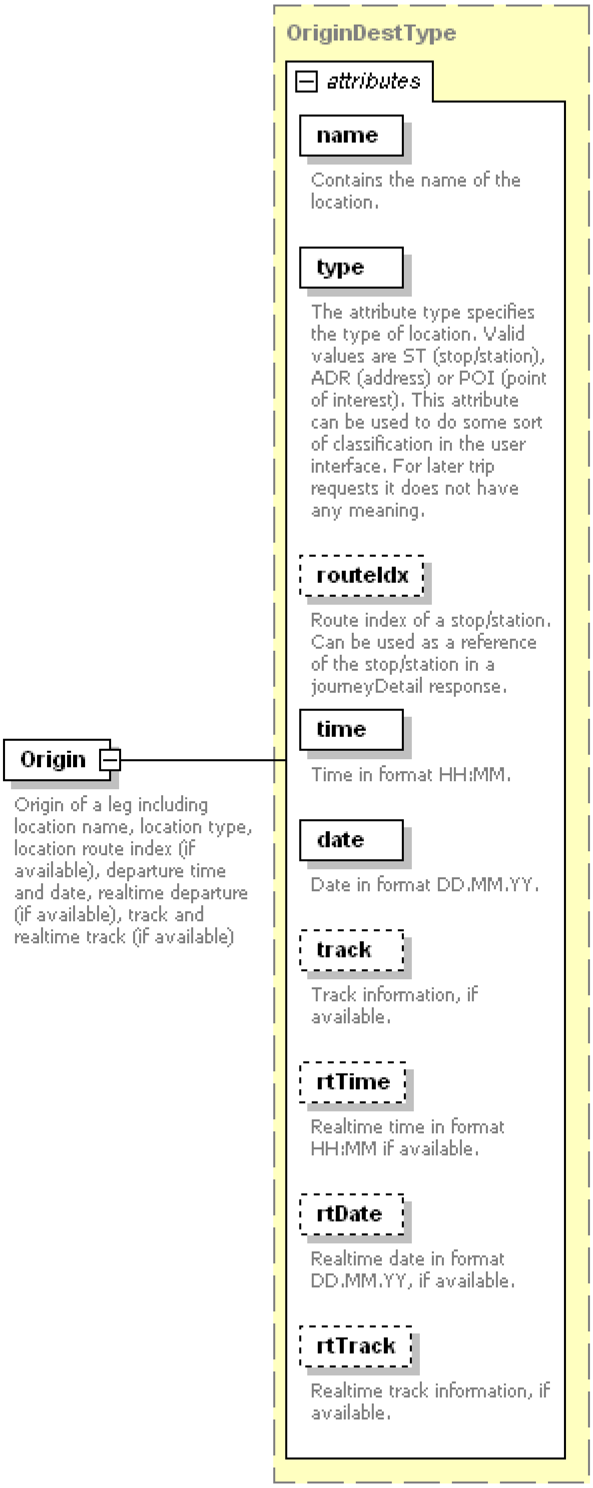
properties	isRef 0 use required
annotation	documentation URL for a link
source	<xs:attribute name="url" use="required"> <xs:annotation> <xs:documentation>URL for a link</xs:documentation> </xs:annotation> </xs:attribute>

attribute **Leg/MessageList/Message/Links/Link/@text**

properties	isRef 0 use optional
annotation	documentation Linktext for a link
source	<xs:attribute name="text" use="optional"> <xs:annotation> <xs:documentation>Linktext for a link</xs:documentation> </xs:annotation> </xs:attribute>

element **Origin**

diagram


OriginDestType
attributes
name
Contains the name of the location.
type
The attribute type specifies the type of location. Valid values are ST (stop/station), ADR (address) or POI (point of interest). This attribute can be used to do some sort of classification in the user interface. For later trip requests it does not have any meaning.
routeIdx
Route index of a stop/station. Can be used as a reference of the stop/station in a journeyDetail response.
time
Time in format HH:MM.
date
Date in format DD.MM.YY.
track
Track information, if available.
rtTime
Realtime time in format HH:MM if available.
rtDate
Realtime date in format DD.MM.YY, if available.
rtTrack
Realtime track information, if available.
Origin
Origin of a leg including location name, location type, location route index (if available), departure time and date, realtime departure (if available), track and realtime track (if available)

type	OriginDestType	
used by	element	Leg

attributes

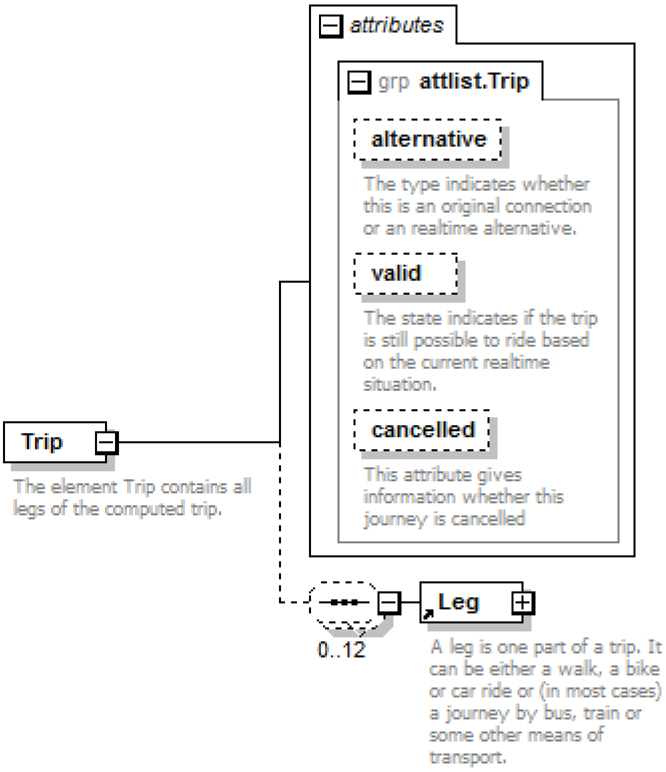
Name	Type	Use	Default	Fixed
name	**xs:string**	required		
type		required		
routeIdx	**xs:integer**	optional		
time	**xs:string**	required		
date	**xs:string**	required		
track	**xs:string**	optional		
rtTime	**xs:string**	optional		
rtDate	**xs:string**	optional		
rtTrack	**xs:string**	optional		

source

```
<xs:element name="Origin" type="OriginDestType">
 <xs:annotation>
  <xs:documentation>Origin of a leg including location name, location type, location route index (if available), departure time and date, realtime departure (if available), track and realtime track (if available)</xs:documentation>
 </xs:annotation>
</xs:element>
```

element **Trip**

diagram


attributes
grp attlist.Trip
alternative
The type indicates whether this is an original connection or an realtime alternative.
valid
The state indicates if the trip is still possible to ride based on the current realtime situation.
cancelled
This attribute gives information whether this journey is cancelled
Trip
The element Trip contains all legs of the computed trip.
0..12
Leg
A leg is one part of a trip. It can be either a walk, a bike or car ride or (in most cases) a journey by bus, train or some other means of transport.

children **Leg**

used by element **TripList**

attributes

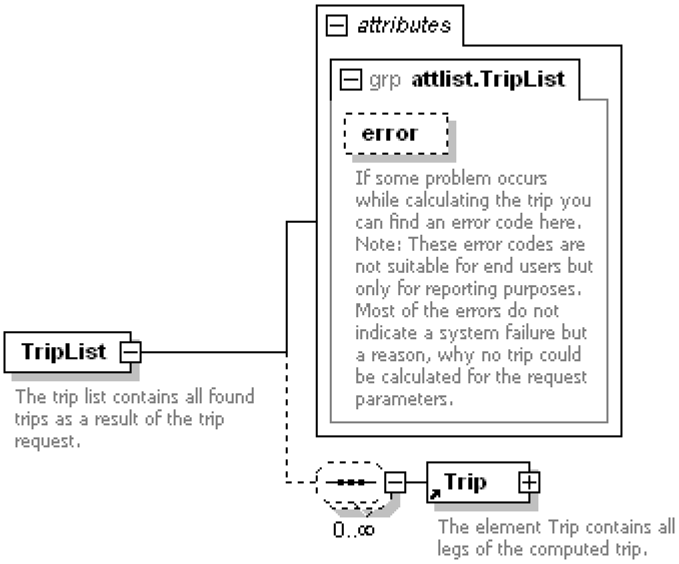
Name	Type	Use	Default	Fixed
alternative	**xs:boolean**	optional	false	
valid	**xs:boolean**	optional	true	
cancelled	**xs:boolean**	optional	true	

source

```
<xs:element name="Trip">
 <xs:annotation>
  <xs:documentation>The element Trip contains all legs of the computed trip.</xs:documentation>
 </xs:annotation>
 <xs:complexType>
  <xs:sequence minOccurs="0" maxOccurs="12">
   <xs:element ref="Leg"/>
  </xs:sequence>
  <xs:attributeGroup ref="attlist.Trip"/>
 </xs:complexType>
</xs:element>
```

element **TripList**

diagram


attributes
grp attlist.TripList
error
If some problem occurs while calculating the trip you can find an error code here. Note: These error codes are not suitable for end users but only for reporting purposes. Most of the errors do not indicate a system failure but a reason, why no trip could be calculated for the request parameters.
TripList
The trip list contains all found trips as a result of the trip request.
0..∞
Trip
The element Trip contains all legs of the computed trip.

children **Trip**

attributes

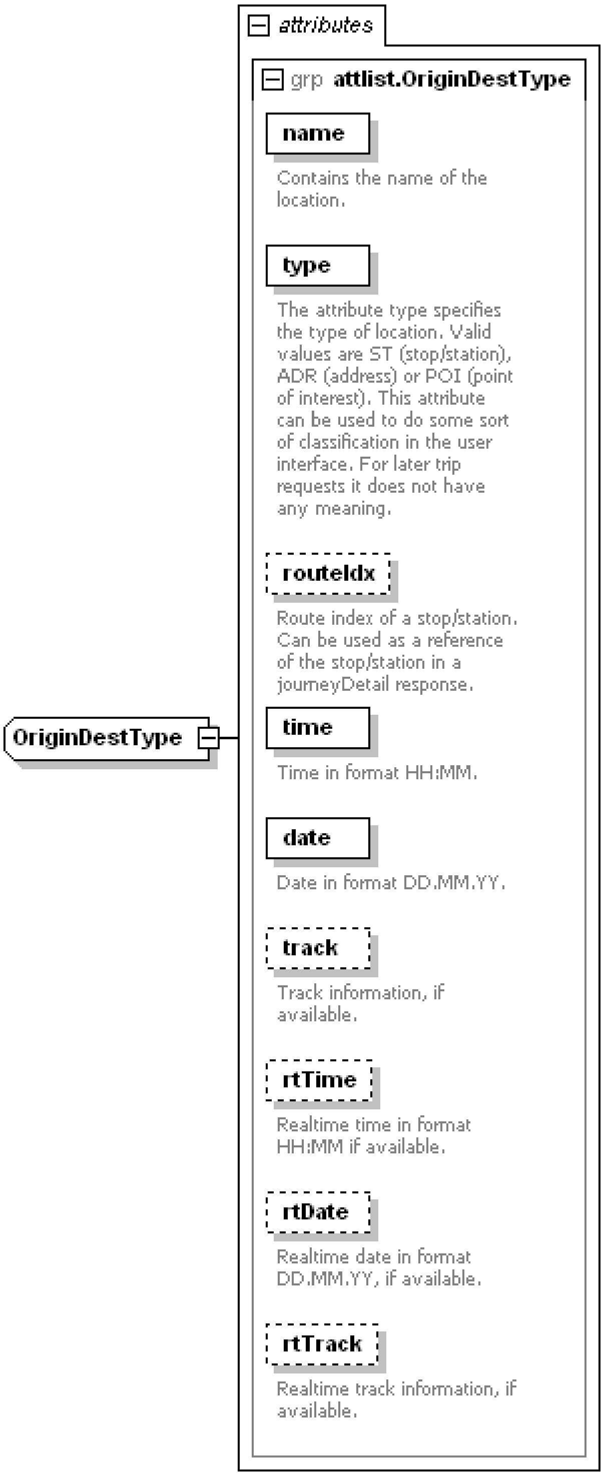
Name	Type	Use	Default	Fixed
error	**xs:string**	optional		

source

```
<xs:element name="TripList">
 <xs:annotation>
  <xs:documentation>The trip list contains all found trips as a result of the trip request.
        </xs:documentation>
 </xs:annotation>
 <xs:complexType>
  <xs:sequence minOccurs="0" maxOccurs="unbounded">
   <xs:element ref="Trip"/>
  </xs:sequence>
  <xs:attributeGroup ref="attlist.TripList"/>
 </xs:complexType>
</xs:element>
```

complexType **OriginDestType**

diagram


attributes
grp attlist.OriginDestType
name
Contains the name of the location.
type
The attribute type specifies the type of location. Valid values are ST (stop/station), ADR (address) or POI (point of interest). This attribute can be used to do some sort of classification in the user interface. For later trip requests it does not have any meaning.
routeIdx
Route index of a stop/station. Can be used as a reference of the stop/station in a journeyDetail response.
time
Time in format HH:MM.
date
Date in format DD.MM.YY.
track
Track information, if available.
rtTime
Realtime time in format HH:MM if available.
rtDate
Realtime date in format DD.MM.YY, if available.
rtTrack
Realtime track information, if available.
OriginDestType

used by elements **Destination Origin**

attributes

Name	Type	Use	Default	Fixed
name	**xs:string**	required		
type		required		

routeIdx	**xs:integer**	optional
time	**xs:string**	required
date	**xs:string**	required
track	**xs:string**	optional
rtTime	**xs:string**	optional
rtDate	**xs:string**	optional
rtTrack	**xs:string**	optional

source

```
<xs:complexType name="OriginDestType">
 <xs:attributeGroup ref="attlist.OriginDestType"/>
</xs:complexType>
```

attributeGroup **attlist.JourneyDetailRef**

used by element **JourneyDetailRef**

attributes

Name	Type	Use	Default	Fixed
ref	**xs:string**	required		

source

```
<xs:attributeGroup name="attlist.JourneyDetailRef">
 <xs:attribute name="ref" type="xs:string" use="required">
  <xs:annotation>
   <xs:documentation>Contains a URL to call the ReST interface for journey details.</xs:documentation>
  </xs:annotation>
 </xs:attribute>
</xs:attributeGroup>
```

attributeGroup **attlist.Leg**

used by element **Leg**

attributes

Name	Type	Use	Default	Fixed
name		required		
type		required		

source

```
<xs:attributeGroup name="attlist.Leg">
 <xs:attribute name="name" use="required">
  <xs:annotation>
```

```
      <xs:documentation>The attribute name specifies the name of the leg (e.g. "Bus 100").
          </xs:documentation>
    </xs:annotation>
  </xs:attribute>
  <xs:attribute name="type" use="required">
    <xs:annotation>
      <xs:documentation>The attribute type specifies the type of the leg. Valid values are IC (InterCity), LYN (Lyntog),
REG (Regionaltog), S (S-Tog), TOG (other train), BUS (Bus), EXB (Express Buss), NB (Nattbus), TB (Telebus, other form
of transport), F (Ferry) and M (Metro). Furthermore it can be of type WALK, BIKE and CAR if these legs are routes on
the street network.
              </xs:documentation>
    </xs:annotation>
    <xs:simpleType>
      <xs:restriction base="xs:string">
        <xs:enumeration value="IC"/>
        <xs:enumeration value="LYN"/>
        <xs:enumeration value="REG"/>
        <xs:enumeration value="S"/>
        <xs:enumeration value="TOG"/>
        <xs:enumeration value="BUS"/>
        <xs:enumeration value="EXB"/>
        <xs:enumeration value="NB"/>
        <xs:enumeration value="TB"/>
        <xs:enumeration value="F"/>
        <xs:enumeration value="M"/>
        <xs:enumeration value="WALK"/>
        <xs:enumeration value="BIKE"/>
        <xs:enumeration value="CAR"/>
      </xs:restriction>
    </xs:simpleType>
  </xs:attribute>
</xs:attributeGroup>
```

attributeGroup **attlist.Notes**

used by element **Notes**

attributes

Name	Type	Use	Default	Fixed
text	**xs:string**	required		

source
```
<xs:attributeGroup name="attlist.Notes">
 <xs:attribute name="text" type="xs:string" use="required">
  <xs:annotation>
   <xs:documentation>Text to be displayed.</xs:documentation>
  </xs:annotation>
 </xs:attribute>
</xs:attributeGroup>
```

attributeGroup **attlist.OriginDestType**

used by complexType **OriginDestType**

attributes

Name	Type	Use	Default	Fixed
name	**xs:string**	required		
type		required		
routeIdx	**xs:integer**	optional		
time	**xs:string**	required		
date	**xs:string**	required		
track	**xs:string**	optional		
rtTime	**xs:string**	optional		
rtDate	**xs:string**	optional		
rtTrack	**xs:string**	optional		

source
```
<xs:attributeGroup name="attlist.OriginDestType">
 <xs:attribute name="name" type="xs:string" use="required">
  <xs:annotation>
   <xs:documentation>Contains the name of the location.
          </xs:documentation>
  </xs:annotation>
 </xs:attribute>
 <xs:attribute name="type" use="required">
  <xs:annotation>
   <xs:documentation>The attribute type specifies the type of location. Valid values are ST (stop/station), ADR (address) or POI (point of interest). This attribute can be used to do some sort of classification in the user interface. For later trip requests it does not have any meaning.
          </xs:documentation>
  </xs:annotation>
  <xs:simpleType>
   <xs:restriction base="xs:string">
    <xs:enumeration value="ST"/>
    <xs:enumeration value="ADR"/>
    <xs:enumeration value="POI"/>
   </xs:restriction>
  </xs:simpleType>
 </xs:attribute>
 <xs:attribute name="routeIdx" type="xs:integer" use="optional">
  <xs:annotation>
   <xs:documentation>Route index of a stop/station. Can be used as a reference of the stop/station in a journeyDetail response.</xs:documentation>
  </xs:annotation>
 </xs:attribute>
 <xs:attribute name="time" type="xs:string" use="required">
  <xs:annotation>
   <xs:documentation>Time in format HH:MM.
          </xs:documentation>
  </xs:annotation>
 </xs:attribute>
 <xs:attribute name="date" type="xs:string" use="required">
  <xs:annotation>
   <xs:documentation>Date in format DD.MM.YY.
          </xs:documentation>
  </xs:annotation>
 </xs:attribute>
 <xs:attribute name="track" type="xs:string" use="optional">
  <xs:annotation>
   <xs:documentation>Track information, if available.
          </xs:documentation>
  </xs:annotation>
 </xs:attribute>
 <xs:attribute name="rtTime" type="xs:string" use="optional">
  <xs:annotation>
   <xs:documentation>Realtime time in format HH:MM if available.
          </xs:documentation>
  </xs:annotation>
 </xs:attribute>
 <xs:attribute name="rtDate" type="xs:string" use="optional">
  <xs:annotation>
   <xs:documentation>Realtime date in format DD.MM.YY, if available.
          </xs:documentation>
  </xs:annotation>
 </xs:attribute>
 <xs:attribute name="rtTrack" type="xs:string" use="optional">
  <xs:annotation>
   <xs:documentation>Realtime track information, if available.
          </xs:documentation>
  </xs:annotation>
 </xs:attribute>
</xs:attributeGroup>
```

attributeGroup **attlist.Trip**

used by	element	**Trip**				
attributes	Name		Type	Use	Default	Fixed

alternative	**xs:boolean**	optional	false
valid	**xs:boolean**	optional	true
cancelled	**xs:boolean**	optional	true

source

```
<xs:attributeGroup name="attlist.Trip">
 <xs:attribute name="alternative" type="xs:boolean" use="optional" default="false">
  <xs:annotation>
   <xs:documentation>The type indicates whether this is an original connection or an realtime alternative.</xs:documentation>
  </xs:annotation>
 </xs:attribute>
 <xs:attribute name="valid" type="xs:boolean" use="optional" default="true">
  <xs:annotation>
   <xs:documentation>The state indicates if the trip is still possible to ride based on the current realtime situation.</xs:documentation>
  </xs:annotation>
 </xs:attribute>
<xs:attribute name="cancelled" type="xs:boolean " use="optional">
  <xs:annotation>
   <xs:documentation>This attribute gives information whether this journey is cancelled</xs:documentation>
  </xs:annotation>
 </xs:attribute>
</xs:attributeGroup>

</xs:attributeGroup>
```

attributeGroup **attlist.TripList**

used by element **TripList**

attributes

Name	Type	Use	Default	Fixed
error	**xs:string**	optional		

source

```
<xs:attributeGroup name="attlist.TripList">
 <xs:attribute name="error" type="xs:string" use="optional">
  <xs:annotation>
   <xs:documentation>If some problem occurs while calculating the trip you can find an error code here. Note: These error codes are not suitable for end users but only for reporting purposes. Most of the errors do not indicate a system failure but a reason, why no trip could be calculated for the request parameters.</xs:documentation>
```

```
      </xs:annotation>
    </xs:attribute>
  </xs:attributeGroup>
```

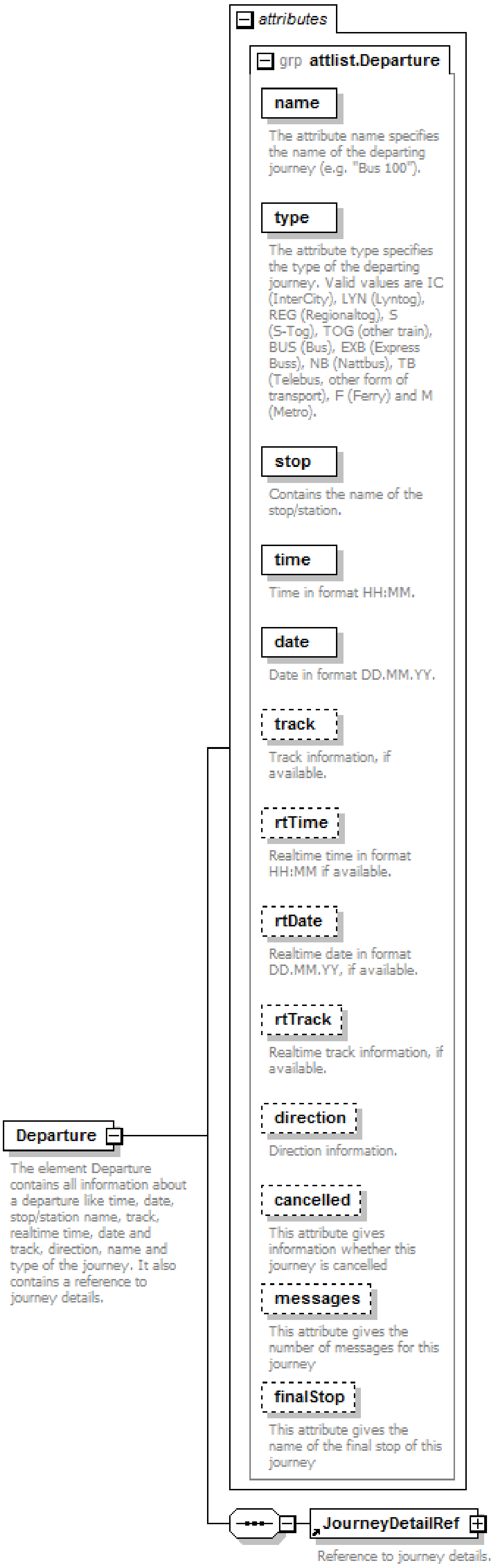
1.4.3 Departure board response

The departure board response contains a list of departures incl. all information concerning times, tracks, realtime data and journey. It also contains reference URLs to get more details for the different journeys. The root element is `DepartureBoard`.

Schema **hafasRestDepartureBoard.xsd**

element **Departure**

diagram


attributes
grp attlist.Departure
name
The attribute name specifies the name of the departing journey (e.g. "Bus 100").
type
The attribute type specifies the type of the departing journey. Valid values are IC (InterCity), LYN (Lyntog), REG (Regionaltog), S (S-Tog), TOG (other train), BUS (Bus), EXB (Express Buss), NB (Nattbus), TB (Telebus, other form of transport), F (Ferry) and M (Metro).
stop
Contains the name of the stop/station.
time
Time in format HH:MM.
date
Date in format DD.MM.YY.
track
Track information, if available.
rtTime
Realtime time in format HH:MM if available.
rtDate
Realtime date in format DD.MM.YY, if available.
rtTrack
Realtime track information, if available.
direction
Direction information.
cancelled
This attribute gives information whether this journey is cancelled
messages
This attribute gives the number of messages for this journey
finalStop
This attribute gives the name of the final stop of this journey
Departure
The element Departure contains all information about a departure like time, date, stop/station name, track, realtime time, date and track, direction, name and type of the journey. It also contains a reference to journey details.
JourneyDetailRef
Reference to journey details.

children **JourneyDetailRef**

used by element **DepartureBoard**

attributes

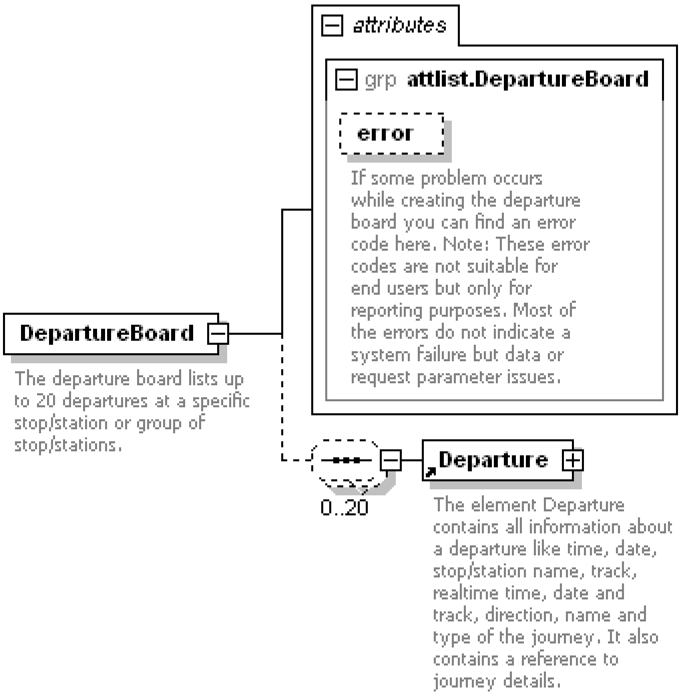
Name	Type	Use	Default	Fixed
name		required		
type		required		
stop	**xs:string**	required		
time	**xs:string**	required		
date	**xs:string**	required		
track	**xs:string**	optional		
rtTime	**xs:string**	optional		
rtDate	**xs:string**	optional		
rtTrack	**xs:string**	optional		
direction	**xs:string**	optional		
messages	**xs:integer**	optional		
finalStop	**xs:string**	optional		

source

```
<xs:element name="Departure">
 <xs:annotation>
  <xs:documentation>The element Departure contains all information about a departure like time, date, stop/station name, track, realtime time, date and track, direction, name and type of the journey. It also contains a reference to journey details.</xs:documentation>
 </xs:annotation>
 <xs:complexType>
  <xs:sequence>
   <xs:element ref="JourneyDetailRef"/>
  </xs:sequence>
  <xs:attributeGroup ref="attlist.Departure"/>
 </xs:complexType>
</xs:element>
```

element **DepartureBoard**

diagram


attributes
grp attlist.DepartureBoard
error
If some problem occurs while creating the departure board you can find an error code here. Note: These error codes are not suitable for end users but only for reporting purposes. Most of the errors do not indicate a system failure but data or request parameter issues.
DepartureBoard
The departure board lists up to 20 departures at a specific stop/station or group of stop/stations.
0..20
Departure
The element Departure contains all information about a departure like time, date, stop/station name, track, realtime time, date and track, direction, name and type of the journey. It also contains a reference to journey details.

children Departure

attributes

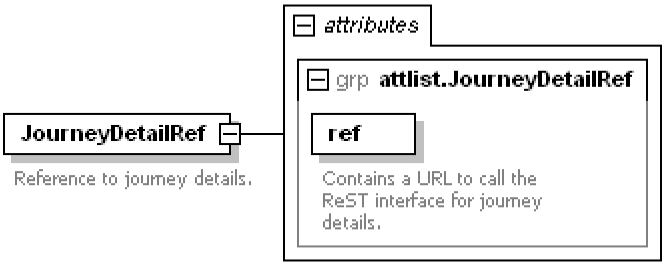
Name	Type	Use	Default	Fixed
error	**xs:string**	optional		

source

```
<xs:element name="DepartureBoard">
 <xs:annotation>
  <xs:documentation>The departure board lists up to 20 departures at a specific stop/station or group of stop/stations.
        </xs:documentation>
 </xs:annotation>
 <xs:complexType>
  <xs:sequence minOccurs="0" maxOccurs="20">
   <xs:element ref="Departure"/>
  </xs:sequence>
  <xs:attributeGroup ref="attlist.DepartureBoard"/>
 </xs:complexType>
</xs:element>
```

element **JourneyDetailRef**

diagram


attributes
grp attlist.JourneyDetailRef
JourneyDetailRef
Reference to journey details.
ref
Contains a URL to call the ReST interface for journey details.

used by element **Departure**

attributes

Name	Type	Use	Default	Fixed
ref	**xs:string**	required		

source

```
<xs:element name="JourneyDetailRef">
 <xs:annotation>
  <xs:documentation>Reference to journey details.</xs:documentation>
 </xs:annotation>
 <xs:complexType>
  <xs:attributeGroup ref="attlist.JourneyDetailRef"/>
 </xs:complexType>
</xs:element>
```

attributeGroup **attlist.Departure**

used by element **Departure**

attributes

Name	Type	Use	Default	Fixed
name		required		
type		required		
stop	**xs:string**	required		
time	**xs:string**	required		
date	**xs:string**	required		
track	**xs:string**	optional		
rtTime	**xs:string**	optional		
rtDate	**xs:string**	optional		
rtTrack	**xs:string**	optional		

direction	**xs:string**	optional	
cancelled	**xs:boolean**	optional	true
messages	**xs:integer**	optional	
finalStop	**xs:string**	optional	

source

```
<xs:attributeGroup name="attlist.Departure">
 <xs:attribute name="name" use="required">
  <xs:annotation>
   <xs:documentation>The attribute name specifies the name of the departing journey (e.g. "Bus 100").
        </xs:documentation>
  </xs:annotation>
 </xs:attribute>
 <xs:attribute name="type" use="required">
  <xs:annotation>
   <xs:documentation>The attribute type specifies the type of the departing journey. Valid values are IC (InterCity), LYN (Lyntog), REG (Regionaltog), S (S-Tog), TOG (other train), BUS (Bus), EXB (Express Buss), NB (Nattbus), TB (Telebus, other form of transport), F (Ferry) and M (Metro).
          </xs:documentation>
  </xs:annotation>
  <xs:simpleType>
   <xs:restriction base="xs:string">
    <xs:enumeration value="IC"/>
    <xs:enumeration value="LYN"/>
    <xs:enumeration value="REG"/>
    <xs:enumeration value="S"/>
    <xs:enumeration value="TOG"/>
    <xs:enumeration value="BUS"/>
    <xs:enumeration value="EXB"/>
    <xs:enumeration value="NB"/>
    <xs:enumeration value="TB"/>
    <xs:enumeration value="F"/>
    <xs:enumeration value="M"/>
  </xs:restriction>
 </xs:simpleType>
</xs:attribute>
<xs:attribute name="stop" type="xs:string" use="required">
 <xs:annotation>
  <xs:documentation>Contains the name of the stop/station.
         </xs:documentation>
 </xs:annotation>
</xs:attribute>
<xs:attribute name="time" type="xs:string" use="required">
 <xs:annotation>
  <xs:documentation>Time in format HH:MM.
         </xs:documentation>
 </xs:annotation>
</xs:attribute>
<xs:attribute name="date" type="xs:string" use="required">
 <xs:annotation>
  <xs:documentation>Date in format DD.MM.YY.
         </xs:documentation>
 </xs:annotation>
</xs:attribute>
<xs:attribute name="track" type="xs:string" use="optional">
 <xs:annotation>
  <xs:documentation>Track information, if available.
         </xs:documentation>
 </xs:annotation>
</xs:attribute>
<xs:attribute name="rtTime" type="xs:string" use="optional">
 <xs:annotation>
  <xs:documentation>Realtime time in format HH:MM if available.
```

```
          </xs:documentation>
  </xs:annotation>
 </xs:attribute>
 <xs:attribute name="rtDate" type="xs:string" use="optional">
  <xs:annotation>
   <xs:documentation>Realtime date in format DD.MM.YY, if available.
          </xs:documentation>
  </xs:annotation>
 </xs:attribute>
 <xs:attribute name="rtTrack" type="xs:string" use="optional">
  <xs:annotation>
   <xs:documentation>Realtime track information, if available.
          </xs:documentation>
  </xs:annotation>
 </xs:attribute>
 <xs:attribute name="direction" type="xs:string" use="optional">
  <xs:annotation>
   <xs:documentation>Direction information.
          </xs:documentation>
  </xs:annotation>
 </xs:attribute>
 <xs:attribute name="cancelled" type="xs:boolean" use="optional" default="true">
  <xs:annotation>
   <xs:documentation>This attribute gives information whether this journey is cancelled</xs:documentation>
  </xs:annotation>
 </xs:attribute>
<xs:attribute name="finalStop" type="xs:string" use="optional">
  <xs:annotation>
   <xs:documentation>This attribute gives the name of the final stop of this journey</xs:documentation>
  </xs:annotation>
 </xs:attribute>
</xs:attributeGroup>
```

attributeGroup **attlist.DepartureBoard**

used by element **DepartureBoard**

attributes

Name	Type	Use	Default	Fixed
error	**xs:string**	optional		

source

```
<xs:attributeGroup name="attlist.DepartureBoard">
 <xs:attribute name="error" type="xs:string" use="optional">
  <xs:annotation>
   <xs:documentation>If some problem occurs while creating the departure board you can find an error code here. Note: These error codes are not suitable for end users but only for reporting purposes. Most of the errors do not indicate a system failure but data or request parameter issues.</xs:documentation>
  </xs:annotation>
 </xs:attribute>
</xs:attributeGroup>
```

attributeGroup **attlist.JourneyDetailRef**

used by element **JourneyDetailRef**

attributes

Name	Type	Use	Default	Fixed
ref	**xs:string**	required		

source

```
<xs:attributeGroup name="attlist.JourneyDetailRef">
 <xs:attribute name="ref" type="xs:string" use="required">
  <xs:annotation>
   <xs:documentation>Contains a URL to call the ReST interface for journey details.</xs:documentation>
  </xs:annotation>
 </xs:attribute>
</xs:attributeGroup>
```

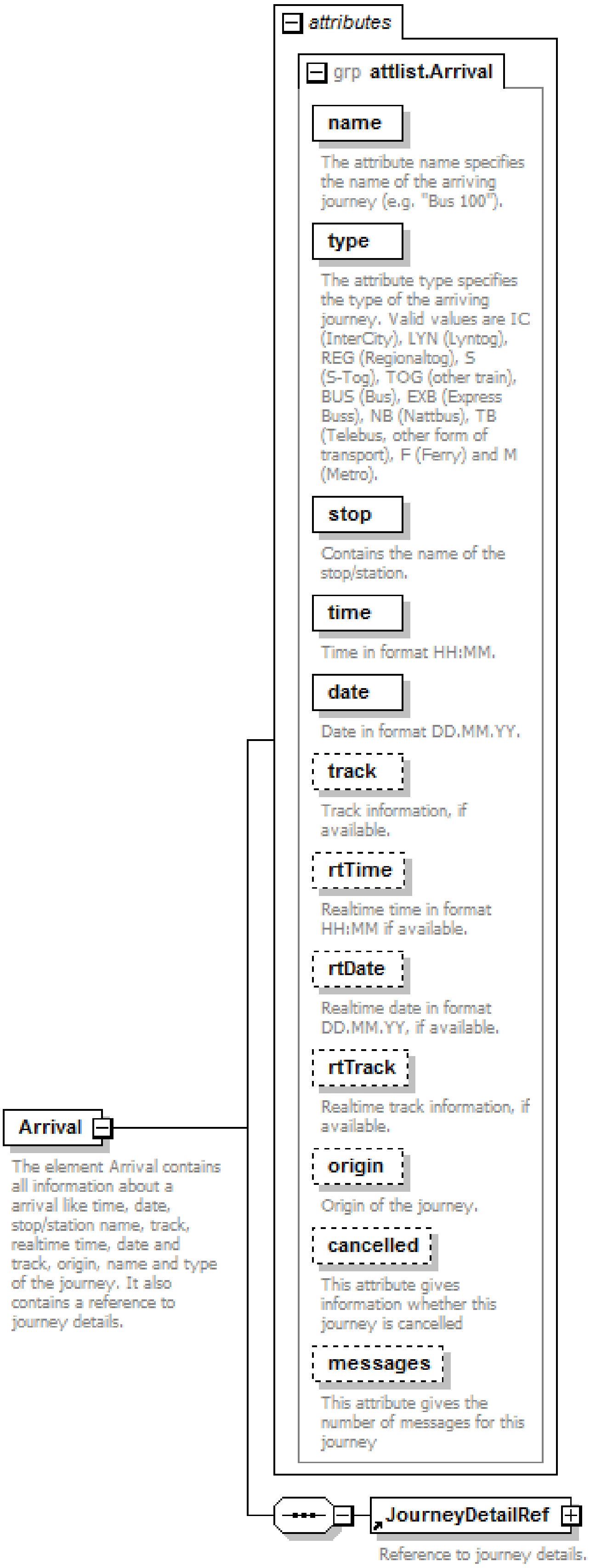
1.4.4 Arrival board response

The arrival board response contains a list of arrivals incl. all information concerning times, tracks, realtime data and journeys. It also contains reference URLs to get more details for the different journeys. The root element is `ArrivalBoard`.

Schema **hafasRestArrivalBoard.xsd**

element **Arrival**

diagram


attributes
grp attlist.Arrival
name
The attribute name specifies the name of the arriving journey (e.g. "Bus 100").
type
The attribute type specifies the type of the arriving journey. Valid values are IC (InterCity), LYN (Lyntog), REG (Regionaltog), S (S-Tog), TOG (other train), BUS (Bus), EXB (Express Buss), NB (Nattbus), TB (Telebus, other form of transport), F (Ferry) and M (Metro).
stop
Contains the name of the stop/station.
time
Time in format HH:MM.
date
Date in format DD.MM.YY.
track
Track information, if available.
rtTime
Realtime time in format HH:MM if available.
rtDate
Realtime date in format DD.MM.YY, if available.
rtTrack
Realtime track information, if available.
origin
Origin of the journey.
cancelled
This attribute gives information whether this journey is cancelled
messages
This attribute gives the number of messages for this journey
Arrival
The element Arrival contains all information about a arrival like time, date, stop/station name, track, realtime time, date and track, origin, name and type of the journey. It also contains a reference to journey details.
JourneyDetailRef
Reference to journey details.

children JourneyDetailRef

used by element ArrivalBoard

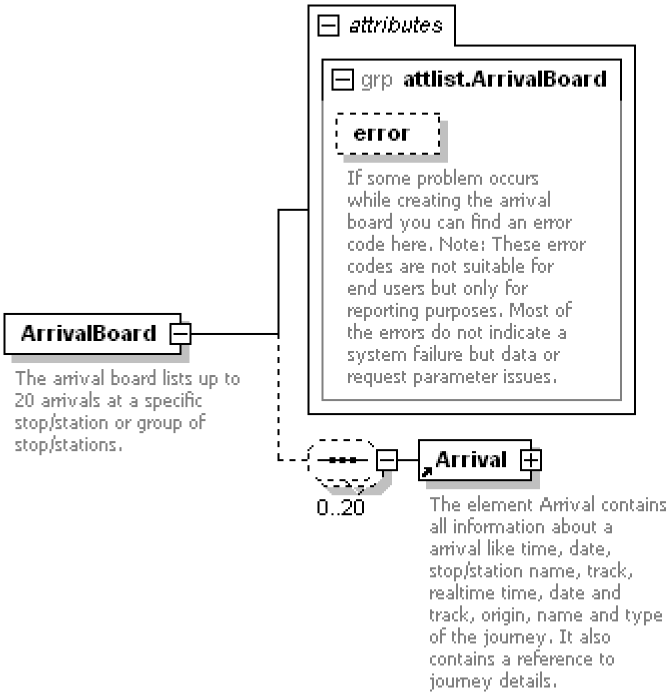
attributes

Name	Type	Use	Default	Fixed
name		required		
type		required		
stop	**xs:string**	required		
time	**xs:string**	required		
date	**xs:string**	required		
track	**xs:string**	optional		
rtTime	**xs:string**	optional		
rtDate	**xs:string**	optional		
rtTrack	**xs:string**	optional		
origin	**xs:string**	optional		

source
```
<xs:element name="Arrival">
 <xs:annotation>
  <xs:documentation>The element Arrival contains all information about a arrival like time, date, stop/station name, track, realtime time, date and track, origin, name and type of the journey. It also contains a reference to journey details.</xs:documentation>
 </xs:annotation>
 <xs:complexType>
  <xs:sequence>
   <xs:element ref="JourneyDetailRef"/>
  </xs:sequence>
  <xs:attributeGroup ref="attlist.Arrival"/>
 </xs:complexType>
</xs:element>
```

element **ArrivalBoard**

diagram


attributes
grp attlist.ArrivalBoard
error
If some problem occurs while creating the arrival board you can find an error code here. Note: These error codes are not suitable for end users but only for reporting purposes. Most of the errors do not indicate a system failure but data or request parameter issues.
ArrivalBoard
The arrival board lists up to 20 arrivals at a specific stop/station or group of stop/stations.
0..20
Arrival
The element Arrival contains all information about a arrival like time, date, stop/station name, track, realtime time, date and track, origin, name and type of the journey. It also contains a reference to journey details.

children **Arrival**

attributes

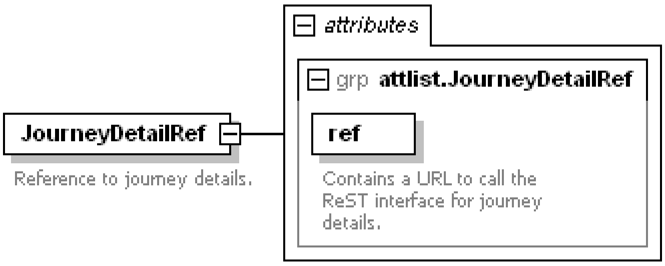
Name	Type	Use	Default	Fixed
error	**xs:string**	optional		

source

```
<xs:element name="ArrivalBoard">
 <xs:annotation>
  <xs:documentation>The arrival board lists up to 20 arrivals at a specific stop/station or group of stop/stations.</xs:documentation>
 </xs:annotation>
 <xs:complexType>
  <xs:sequence minOccurs="0" maxOccurs="20">
   <xs:element ref="Arrival"/>
  </xs:sequence>
  <xs:attributeGroup ref="attlist.ArrivalBoard"/>
 </xs:complexType>
</xs:element>
```

element **JourneyDetailRef**

diagram


JourneyDetailRef
Reference to journey details.
attributes
grp attlist.JourneyDetailRef
ref
Contains a URL to call the ReST interface for journey details.

used by   element **Arrival**

attributes

Name	Type	Use	Default	Fixed
ref	**xs:string**	required		

source

```
<xs:element name="JourneyDetailRef">
 <xs:annotation>
  <xs:documentation>Reference to journey details.</xs:documentation>
 </xs:annotation>
 <xs:complexType>
  <xs:attributeGroup ref="attlist.JourneyDetailRef"/>
 </xs:complexType>
</xs:element>
```

attributeGroup **attlist.Arrival**

used by   element **Arrival**

attributes

Name	Type	Use	Default	Fixed
name		required		
type		required		
stop	**xs:string**	required		
time	**xs:string**	required		
date	**xs:string**	required		
track	**xs:string**	optional		
rtTime	**xs:string**	optional		
rtDate	**xs:string**	optional		
rtTrack	**xs:string**	optional		

origin	**xs:string**	optional	
cancelled	**xs:boolean**	optional	true
messages	**xs:integer**	optional	

source

```
<xs:attributeGroup name="attlist.Arrival">
 <xs:attribute name="name" use="required">
  <xs:annotation>
   <xs:documentation>The attribute name specifies the name of the arriving journey (e.g. "Bus 100").</xs:documentation>
  </xs:annotation>
 </xs:attribute>
 <xs:attribute name="type" use="required">
  <xs:annotation>
   <xs:documentation>The attribute type specifies the type of the arriving journey. Valid values are IC (InterCity), LYN (Lyntog), REG (Regionaltog), S (S-Tog), TOG (other train), BUS (Bus), EXB (Express Buss), NB (Nattbus), TB (Tele-bus, other form of transport), F (Ferry) and M (Metro).</xs:documentation>
  </xs:annotation>
  <xs:simpleType>
   <xs:restriction base="xs:string">
    <xs:enumeration value="IC"/>
    <xs:enumeration value="LYN"/>
    <xs:enumeration value="REG"/>
    <xs:enumeration value="S"/>
    <xs:enumeration value="TOG"/>
    <xs:enumeration value="BUS"/>
    <xs:enumeration value="EXB"/>
    <xs:enumeration value="NB"/>
    <xs:enumeration value="TB"/>
    <xs:enumeration value="F"/>
    <xs:enumeration value="M"/>
   </xs:restriction>
  </xs:simpleType>
 </xs:attribute>
```

```
<xs:attribute name="stop" type="xs:string" use="required">
 <xs:annotation>
  <xs:documentation>Contains the name of the stop/station.</xs:documentation>
 </xs:annotation>
</xs:attribute>
<xs:attribute name="time" type="xs:string" use="required">
 <xs:annotation>
  <xs:documentation>Time in format HH:MM.</xs:documentation>
 </xs:annotation>
</xs:attribute>
<xs:attribute name="date" type="xs:string" use="required">
 <xs:annotation>
  <xs:documentation>Date in format DD.MM.YY.</xs:documentation>
 </xs:annotation>
</xs:attribute>
<xs:attribute name="track" type="xs:string" use="optional">
 <xs:annotation>
  <xs:documentation>Track information, if available.</xs:documentation>
 </xs:annotation>
</xs:attribute>
<xs:attribute name="rtTime" type="xs:string" use="optional">
 <xs:annotation>
  <xs:documentation>Realtime time in format HH:MM if available.</xs:documentation>
 </xs:annotation>
</xs:attribute>
<xs:attribute name="rtDate" type="xs:string" use="optional">
 <xs:annotation>
  <xs:documentation>Realtime date in format DD.MM.YY, if available.</xs:documentation>
 </xs:annotation>
</xs:attribute>
```

```
  <xs:attribute name="rtTrack" type="xs:string" use="optional">
    <xs:annotation>
      <xs:documentation>Realtime track information, if available.</xs:documentation>
    </xs:annotation>
  </xs:attribute>
  <xs:attribute name="origin" type="xs:string" use="optional">
    <xs:annotation>
      <xs:documentation>Origin of the journey.</xs:documentation>
    </xs:annotation>
  </xs:attribute>
  <xs:attribute name="cancelled" type="xs:boolean" use="optional" default="true">
    <xs:annotation>
      <xs:documentation>This attribute gives information whether this journey is cancelled</xs:documentation>
    </xs:annotation>
  </xs:attribute>
   <xs:attribute name="messages" type="xs:integer" use="optional">
    <xs:annotation>
      <xs:documentation>This attribute gives the number of messages for this journey</xs:documentation>
    </xs:annotation>
  </xs:attribute>
</xs:attributeGroup>
```

attributeGroup **attlist.ArrivalBoard**

used by element **ArrivalBoard**

attributes

Name	Type	Use	Default	Fixed
error	**xs:string**	optional		

source

```
<xs:attributeGroup name="attlist.ArrivalBoard">
  <xs:attribute name="error" type="xs:string" use="optional">
    <xs:annotation>
      <xs:documentation>If some problem occurs while creating the arrival board you can find an error code here. Note: These error codes are not suitable for end users but only for reporting purposes. Most of the errors do not indicate a system failure but data or request parameter issues.</xs:documentation>
    </xs:annotation>
  </xs:attribute>
</xs:attributeGroup>
```

attributeGroup **attlist.JourneyDetailRef**

used by	element **JourneyDetailRef**				
attributes	Name	Type	Use	Default	Fixed
	ref	**xs:string**	required		

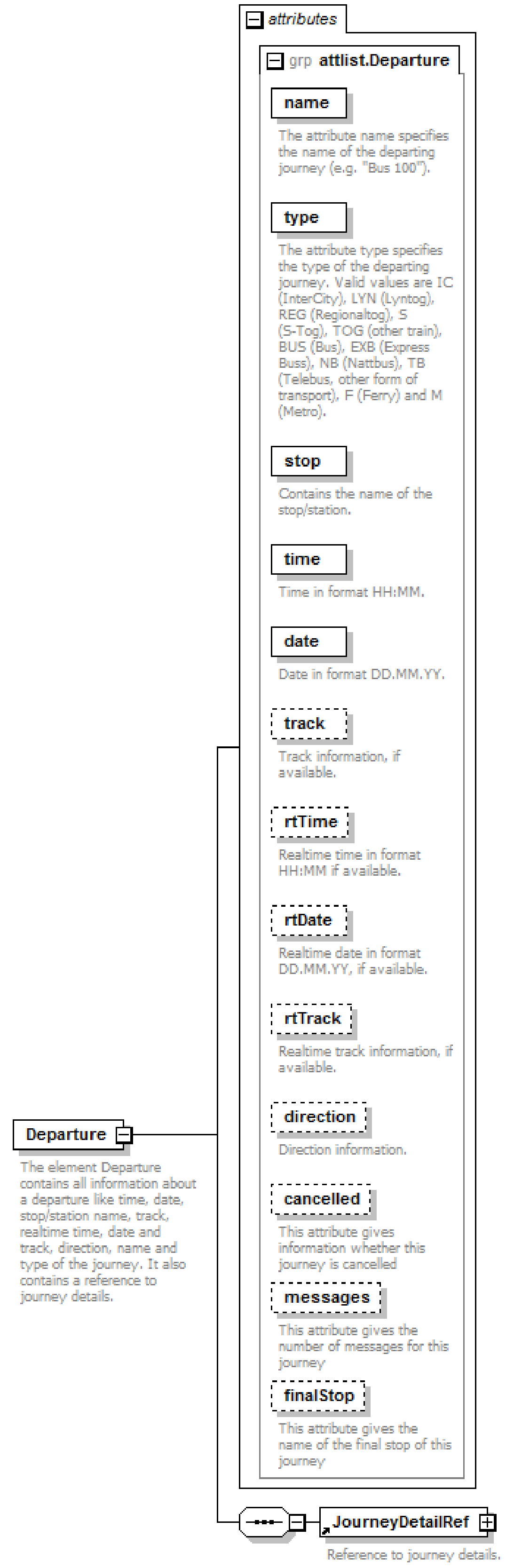
source

```
<xs:attributeGroup name="attlist.JourneyDetailRef">
 <xs:attribute name="ref" type="xs:string" use="required">
  <xs:annotation>
   <xs:documentation>Contains a URL to call the ReST interface for journey details.</xs:documentation>
  </xs:annotation>
 </xs:attribute>
</xs:attributeGroup>
```

1.4.5 Multi departure board response

The multi departure board response contains a list of departures incl. all information concerning times, tracks, realtime data and journeys. It also contains reference URLs to get more details for the different journeys. The root element is `MultiDepartureBoard`.

Schema **hafasRestMultiDepartureBoard.xsd** element **Departure**

diagram	
children	JourneyDetailRef

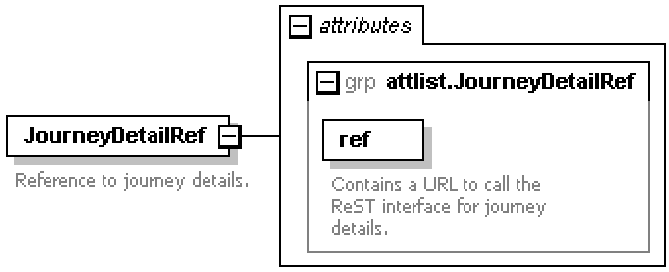
attributes
grp attlist.Departure
name
The attribute name specifies the name of the departing journey (e.g. "Bus 100").
type
The attribute type specifies the type of the departing journey. Valid values are IC (InterCity), LYN (Lyntog), REG (Regionaltog), S (S-Tog), TOG (other train), BUS (Bus), EXB (Express Buss), NB (Nattbus), TB (Telebus, other form of transport), F (Ferry) and M (Metro).
stop
Contains the name of the stop/station.
time
Time in format HH:MM.
date
Date in format DD.MM.YY.
track
Track information, if available.
rtTime
Realtime time in format HH:MM if available.
rtDate
Realtime date in format DD.MM.YY, if available.
rtTrack
Realtime track information, if available.
direction
Direction information.
cancelled
This attribute gives information whether this journey is cancelled
messages
This attribute gives the number of messages for this journey
finalStop
This attribute gives the name of the final stop of this journey
Departure
The element Departure contains all information about a departure like time, date, stop/station name, track, realtime time, date and track, direction, name and type of the journey. It also contains a reference to journey details.
JourneyDetailRef
Reference to journey details.

used by	element	MultiDepartureBoard			
attributes	Name	Type	Use	Default	Fixed
	name		required		
	type	**derived by: xs:string**	required		
	stop	**xs:string**	required		
	time	**xs:string**	required		
	date	**xs:string**	required		
	track	**xs:string**	optional		
	rtTime	**xs:string**	optional		
	rtDate	**xs:string**	optional		
	rtTrack	**xs:string**	optional		
	direction	**xs:string**	optional		
	cancelled	**xs:boolean**	optional	true	
	messages	**xs:string**	optional		
	finalStop	**xs:string**	optional		

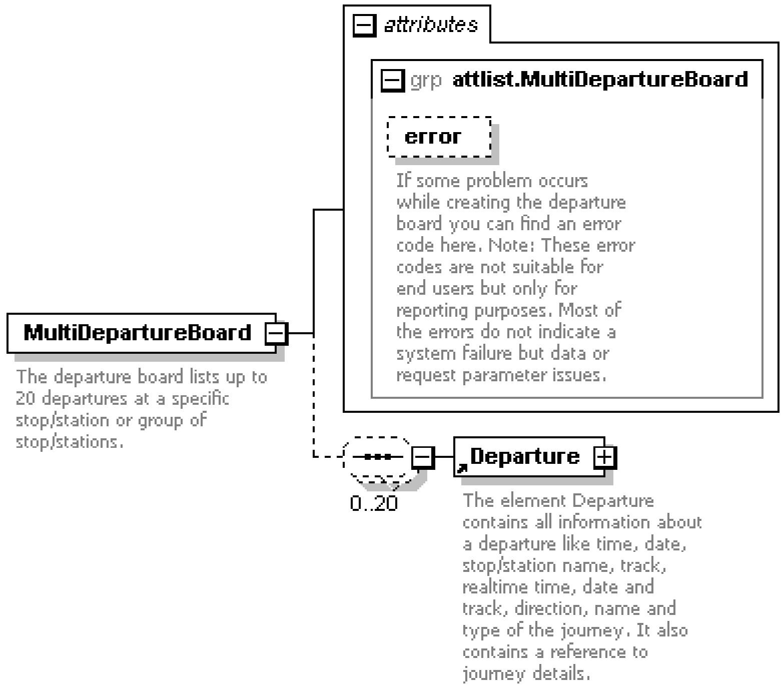
source

```
<xs:element name="Departure">
 <xs:annotation>
  <xs:documentation>The element Departure contains all information about a departure like time, date, stop/station name, track, realtime time, date and track, direction, name and type of the journey. It also contains a reference to journey details.</xs:documentation>
 </xs:annotation>
 <xs:complexType>
  <xs:sequence>
   <xs:element ref="JourneyDetailRef"/>
  </xs:sequence>
  <xs:attributeGroup ref="attlist.Departure"/>
 </xs:complexType>
</xs:element>
```

element **JourneyDetailRef**

diagram	 attributes grp attlist.JourneyDetailRef ref Contains a URL to call the ReST interface for journey details. JourneyDetailRef Reference to journey details.				
used by	element	Departure			
attributes	Name	Type	Use	Default	Fixed
	ref	**xs:string**	required		
source	<xs:element name="JourneyDetailRef"> <xs:annotation> <xs:documentation>Reference to journey details.</xs:documentation> </xs:annotation> <xs:complexType> <xs:attributeGroup ref="attlist.JourneyDetailRef"/> </xs:complexType> </xs:element>				

element **MultiDepartureBoard**

diagram	 attributes grp attlist.MultiDepartureBoard error If some problem occurs while creating the departure board you can find an error code here. Note: These error codes are not suitable for end users but only for reporting purposes. Most of the errors do not indicate a system failure but data or request parameter issues. MultiDepartureBoard The departure board lists up to 20 departures at a specific stop/station or group of stop/stations. 0..20 Departure The element Departure contains all information about a departure like time, date, stop/station name, track, realtime time, date and track, direction, name and type of the journey. It also contains a reference to journey details.				
children	Departure				
attributes	Name	Type	Use	Default	Fixed

	error	**xs:string**	optional

source

```
<xs:element name="MultiDepartureBoard">
 <xs:annotation>
  <xs:documentation>The departure board lists up to 20 departures at a specific stop/station or group of stop/stations.
        </xs:documentation>
 </xs:annotation>
 <xs:complexType>
  <xs:sequence minOccurs="0" maxOccurs="20">
   <xs:element ref="Departure"/>
  </xs:sequence>
  <xs:attributeGroup ref="attlist.MultiDepartureBoard"/>
 </xs:complexType>
</xs:element>
```

attributeGroup **attlist.Departure**

used by: element **Departure**

attributes

Name	Type	Use	Default	Fixed
name		required		
type	**derived by: xs:string**	required		
stop	**xs:string**	required		
time	**xs:string**	required		
date	**xs:string**	required		
track	**xs:string**	optional		
rtTime	**xs:string**	optional		
rtDate	**xs:string**	optional		
rtTrack	**xs:string**	optional		
direction	**xs:string**	optional		
cancelled	**xs:boolean**	optional	true	
messages	**xs:integer**	optional		
finalStop	**xs:string**	optional		

source

```
<xs:attributeGroup name="attlist.Departure">
 <xs:attribute name="name" use="required">
  <xs:annotation>
   <xs:documentation>The attribute name specifies the name of the departing journey (e.g. "Bus 100").
        </xs:documentation>
   </xs:annotation>
  </xs:attribute>
  <xs:attribute name="type" use="required">
   <xs:annotation>
    <xs:documentation>The attribute type specifies the type of the departing journey. Valid values are IC
(InterCity), LYN (Lyntog), REG (Regionaltog), S (S-Tog), TOG (other train), BUS (Bus), EXB (Express Buss), NB
(Nattbus), TB (Telebus, other form of transport), F (Ferry) and M (Metro).
            </xs:documentation>
   </xs:annotation>
   <xs:simpleType>
    <xs:restriction base="xs:string">
     <xs:enumeration value="IC"/>
     <xs:enumeration value="LYN"/>
     <xs:enumeration value="REG"/>
     <xs:enumeration value="S"/>
     <xs:enumeration value="TOG"/>
     <xs:enumeration value="BUS"/>
     <xs:enumeration value="EXB"/>
     <xs:enumeration value="NB"/>
     <xs:enumeration value="TB"/>
     <xs:enumeration value="F"/>
     <xs:enumeration value="M"/>
    </xs:restriction>
   </xs:simpleType>
  </xs:attribute>
  <xs:attribute name="stop" type="xs:string" use="required">
   <xs:annotation>
    <xs:documentation>Contains the name of the stop/station.
            </xs:documentation>
   </xs:annotation>
  </xs:attribute>
  <xs:attribute name="time" type="xs:string" use="required">
   <xs:annotation>
    <xs:documentation>Time in format HH:MM.
            </xs:documentation>
   </xs:annotation>
  </xs:attribute>
  <xs:attribute name="date" type="xs:string" use="required">
   <xs:annotation>
    <xs:documentation>Date in format DD.MM.YY.
            </xs:documentation>
   </xs:annotation>
  </xs:attribute>
  <xs:attribute name="track" type="xs:string" use="optional">
   <xs:annotation>
    <xs:documentation>Track information, if available.
            </xs:documentation>
   </xs:annotation>
  </xs:attribute>
  <xs:attribute name="rtTime" type="xs:string" use="optional">
   <xs:annotation>
    <xs:documentation>Realtime time in format HH:MM if available.
            </xs:documentation>
   </xs:annotation>
```

```
 </xs:attribute>
 <xs:attribute name="rtDate" type="xs:string" use="optional">
  <xs:annotation>
   <xs:documentation>Realtime date in format DD.MM.YY, if available.
          </xs:documentation>
  </xs:annotation>
 </xs:attribute>
 <xs:attribute name="rtTrack" type="xs:string" use="optional">
  <xs:annotation>
   <xs:documentation>Realtime track information, if available.
          </xs:documentation>
  </xs:annotation>
 </xs:attribute>
 <xs:attribute name="direction" type="xs:string" use="optional">
  <xs:annotation>
   <xs:documentation>Direction information.
          </xs:documentation>
  </xs:annotation>
 </xs:attribute>
 <xs:attribute name="cancelled" type="xs:boolean" use="optional" default="true">
  <xs:annotation>
   <xs:documentation>This attribute gives information whether this journey is cancelled</xs:documentation>
  </xs:annotation>
 </xs:attribute>

<xs:attribute name="messages" type="xs:integer" use="optional">
  <xs:annotation>
   <xs:documentation>This attribute gives the number of messages for this journey</xs:documentation>
  </xs:annotation>
 </xs:attribute>

 <xs:attribute name="finalStop" type="xs:string" use="optional">
  <xs:annotation>
   <xs:documentation>This attribute gives the name of the final stop of this journey</xs:documentation>
  </xs:annotation>
 </xs:attribute>

</xs:attributeGroup>
```

attributeGroup **attlist.JourneyDetailRef**

used by	element	JourneyDetailRef			
attributes	Name	Type	Use	Default	Fixed
	ref	**xs:string**	required		

source

```
<xs:attributeGroup name="attlist.JourneyDetailRef">
 <xs:attribute name="ref" type="xs:string" use="required">
  <xs:annotation>
   <xs:documentation>Contains a URL to call the ReST interface for journey details.</xs:documentation>
  </xs:annotation>
 </xs:attribute>
```

	</xs:attributeGroup>

attributeGroup **attlist.MultiDepartureBoard**

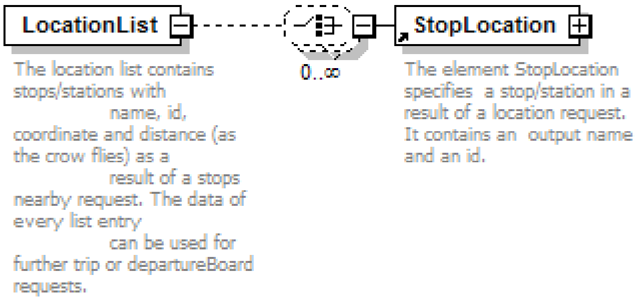
<table>
<tr><td>used by</td><td>element <b>MultiDepartureBoard</b></td></tr>
<tr><td>attributes</td><td><table><tr><td>Name</td><td>Type</td><td>Use</td><td>Default</td><td>Fixed</td></tr><tr><td>error</td><td><b>xs:string</b></td><td>optional</td><td></td><td></td></tr></table></td></tr>
<tr><td>source</td><td>&lt;xs:attributeGroup name="attlist.MultiDepartureBoard">
 <xs:attribute name="error" type="xs:string" use="optional">
  <xs:annotation>
   <xs:documentation>If some problem occurs while creating the departure board you can find an error code here. Note: These error codes are not suitable for end users but only for reporting purposes. Most of the errors do not indicate a system failure but data or request parameter issues.</xs:documentation>
  </xs:annotation>
 </xs:attribute>
</xs:attributeGroup&gt;</td></tr>
</table>

1.4.6 *Stops nearby response*

The stops nearby response contains a list of stop locations. The root element is `LocationList`.

Schema **hafasRestStopsNearby.xsd**

element **LocationList**

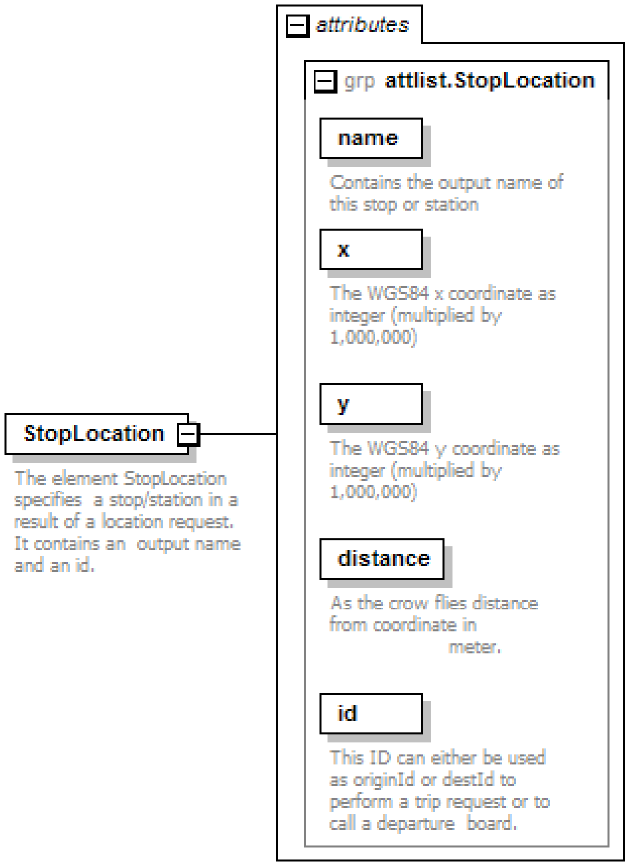
<table>
<tr><td>diagram</td><td>
LocationList
0..∞
StopLocation
The location list contains stops/stations with name, id, coordinate and distance (as the crow flies) as a result of a stops nearby request. The data of every list entry can be used for further trip or departureBoard requests.
The element StopLocation specifies a stop/station in a result of a location request. It contains an output name and an id.

</td></tr>
<tr><td>children</td><td><b>StopLocation</b></td></tr>
<tr><td>source</td><td>&lt;xs:element name="LocationList">
 <xs:annotation>
  <xs:documentation>The location list contains stops/stations with
        name, id, coordinate and distance (as the crow flies) as a
        result of a stops nearby request. The data of every list entry
        can be used for further trip or departureBoard requests.
        </xs:documentation&gt;</td></tr>
</table>

```
  </xs:annotation>
  <xs:complexType>
    <xs:choice minOccurs="0" maxOccurs="unbounded">
      <xs:element ref="StopLocation"/>
    </xs:choice>
  </xs:complexType>
</xs:element>
```

element **StopLocation**

diagram


attributes
grp attlist.StopLocation
name
Contains the output name of this stop or station
x
The WGS84 x coordinate as integer (multiplied by 1,000,000)
y
The WGS84 y coordinate as integer (multiplied by 1,000,000)
distance
As the crow flies distance from coordinate in meter.
id
This ID can either be used as originId or destId to perform a trip request or to call a departure board.
StopLocation
The element StopLocation specifies a stop/station in a result of a location request. It contains an output name and an id.

used by	element	**LocationList**			
attributes	Name	Type	Use	Default	Fixed
	name	**xs:string**	required		
	x	**xs:int**	required		
	y	**xs:int**	required		
	distance	**xs:int**	required		
	id	**xs:string**	required		

source

```
<xs:element name="StopLocation">
  <xs:annotation>
```

```
   <xs:documentation>The element StopLocation specifies  a stop/station in a result of a location request. It
contains an  output name and an id.</xs:documentation>
  </xs:annotation>
  <xs:complexType>
   <xs:attributeGroup ref="attlist.StopLocation"/>
  </xs:complexType>
</xs:element>
```

attributeGroup **attlist.StopLocation**

used by	element	StopLocation			
attributes	Name	Type	Use	Default	Fixed
	name	**xs:string**	required		
	x	**xs:int**	required		
	y	**xs:int**	required		
	distance	**xs:int**	required		
	id	**xs:string**	required		

source

```
<xs:attributeGroup name="attlist.StopLocation">
  <xs:attribute name="name" type="xs:string" use="required">
    <xs:annotation>
      <xs:documentation>Contains the output name of this stop or station</xs:documentation>
    </xs:annotation>
  </xs:attribute>
  <xs:attribute name="x" type="xs:int" use="required">
    <xs:annotation>
      <xs:documentation>The WGS84 x coordinate as integer (multiplied by 1,000,000)
            </xs:documentation>
    </xs:annotation>
  </xs:attribute>
  <xs:attribute name="y" type="xs:int" use="required">
    <xs:annotation>
      <xs:documentation>The WGS84 y coordinate as integer (multiplied by 1,000,000)
            </xs:documentation>
    </xs:annotation>
  </xs:attribute>
  <xs:attribute name="distance" type="xs:int" use="required">
    <xs:annotation>
      <xs:documentation>As the crow flies distance from coordinate in
              meter.
            </xs:documentation>
    </xs:annotation>
  </xs:attribute>
  <xs:attribute name="id" type="xs:string" use="required">
    <xs:annotation>
```

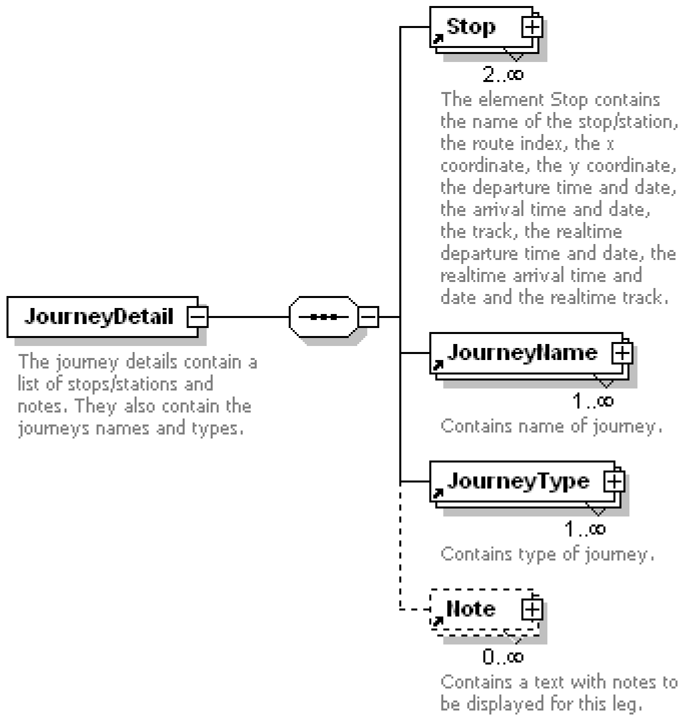
	<xs:documentation>This ID can either be used as originId or destId to perform a trip request or to call a departure board.</xs:documentation> </xs:annotation> </xs:attribute> </xs:attributeGroup>

1.4.7 *Journey detail response*

The journey detail response delivers all information about a single journey (vehicle route). It contains a list of a stops including their indexes on the route and their coordinates. It contains also all times, tracks and realtime information if available for the whole route. It also contains the journeys name and type (there might be different names and types on parts of the journey). Finally it contains notes including information about their validity on segments of the total route and messages which can contain additional information for a journey.

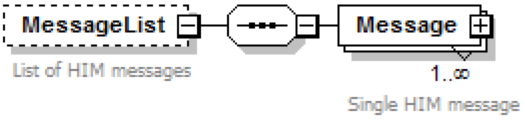
Schema **hafasRestJourneyDetail.xsd**

element **JourneyDetail**

diagram	 JourneyDetail The journey details contain a list of stops/stations and notes. They also contain the journeys names and types. Stop 2..∞ The element Stop contains the name of the stop/station, the route index, the x coordinate, the y coordinate, the departure time and date, the arrival time and date, the track, the realtime departure time and date, the realtime arrival time and date and the realtime track. JourneyName 1..∞ Contains name of journey. JourneyType 1..∞ Contains type of journey. Note 0..∞ Contains a text with notes to be displayed for this leg.
children	**Stop** **JourneyName** **JourneyType** **Note**

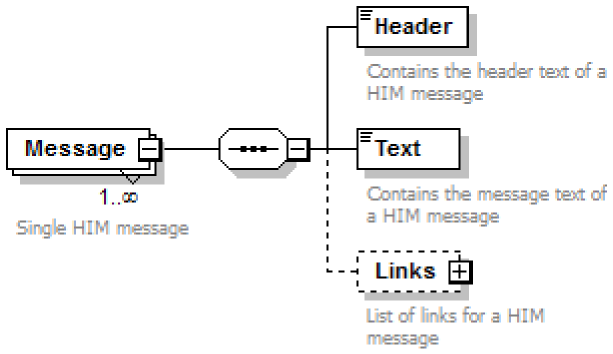
source	<xs:element name="JourneyDetail"> <xs:annotation> <xs:documentation>The journey details contain a list of stops/stations and notes. They also contain the journeys names and types. </xs:documentation> </xs:annotation> <xs:complexType> <xs:sequence> <xs:element ref="Stop" minOccurs="2" maxOccurs="unbounded"/> <xs:element ref="JourneyName" maxOccurs="unbounded"/> <xs:element ref="JourneyType" maxOccurs="unbounded"/> <xs:element ref="Note" minOccurs="0" maxOccurs="unbounded"/> </xs:sequence> </xs:complexType> </xs:element>

element **JourneyDetail/MessageList**

diagram	 MessageList List of HIM messages Message 1..∞ Single HIM message
properties	isRef 0 minOcc 0 maxOcc 1 content complex
children	Message
annotation	documentation List of HIM messages
source	<xs:element name="MessageList" minOccurs="0"> <xs:annotation> <xs:documentation>List of HIM messages</xs:documentation> </xs:annotation> <xs:complexType> <xs:sequence> <xs:element name="Message" maxOccurs="unbounded"> <xs:annotation>

```
     <xs:documentation>Single HIM message</xs:documentation>
    </xs:annotation>
    <xs:complexType>
     <xs:sequence>
      <xs:element name="Header" type="xs:string">
       <xs:annotation>
        <xs:documentation>Contains the header text of a HIM message</xs:documentation>
       </xs:annotation>
      </xs:element>
      <xs:element name="Text" type="xs:string">
       <xs:annotation>
        <xs:documentation>Contains the message text of a HIM message</xs:documentation>
       </xs:annotation>
      </xs:element>
      <xs:element name="Links" minOccurs="0">
       <xs:annotation>
        <xs:documentation>List of links for a HIM message</xs:documentation>
       </xs:annotation>
       <xs:complexType>
        <xs:sequence>
         <xs:element name="Link" maxOccurs="unbounded">
          <xs:annotation>
           <xs:documentation>Single link of a HIM message</xs:documentation>
          </xs:annotation>
          <xs:complexType>
           <xs:attribute name="url" use="required">
            <xs:annotation>
             <xs:documentation>URL for a link</xs:documentation>
            </xs:annotation>
           </xs:attribute>
           <xs:attribute name="text" use="optional">
            <xs:annotation>
             <xs:documentation>Linktext for a link</xs:documentation>
            </xs:annotation>
           </xs:attribute>
          </xs:complexType>
         </xs:element>
        </xs:sequence>
       </xs:complexType>
      </xs:element>
     </xs:sequence>
    </xs:complexType>
   </xs:element>
  </xs:sequence>
 </xs:complexType>
</xs:element>
```

element **JourneyDetail/MessageList/Message**

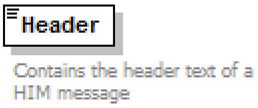
diagram	 Header Contains the header text of a HIM message Message 1..∞ Single HIM message Text Contains the message text of a HIM message Links List of links for a HIM message
properties	isRef 0 minOcc 1 maxOcc unbounded content complex
children	Header Text Links
annotation	documentation Single HIM message

source

```
<xs:element name="Message" maxOccurs="unbounded">
 <xs:annotation>
  <xs:documentation>Single HIM message</xs:documentation>
 </xs:annotation>
 <xs:complexType>
  <xs:sequence>
   <xs:element name="Header" type="xs:string">
    <xs:annotation>
     <xs:documentation>Contains the header text of a HIM message</xs:documentation>
    </xs:annotation>
   </xs:element>
   <xs:element name="Text" type="xs:string">
    <xs:annotation>
     <xs:documentation>Contains the message text of a HIM message</xs:documentation>
    </xs:annotation>
   </xs:element>
   <xs:element name="Links" minOccurs="0">
    <xs:annotation>
     <xs:documentation>List of links for a HIM message</xs:documentation>
    </xs:annotation>
    <xs:complexType>
     <xs:sequence>
      <xs:element name="Link" maxOccurs="unbounded">
       <xs:annotation>
        <xs:documentation>Single link of a HIM message</xs:documentation>
       </xs:annotation>
       <xs:complexType>
        <xs:attribute name="url" use="required">
         <xs:annotation>
```

	<xs:documentation>URL for a link</xs:documentation>
	         </xs:annotation>
	        </xs:attribute>
	        <xs:attribute name="text" use="optional">
	         <xs:annotation>
	          <xs:documentation>Linktext for a link</xs:documentation>
	         </xs:annotation>
	        </xs:attribute>
	       </xs:complexType>
	      </xs:element>
	     </xs:sequence>
	    </xs:complexType>
	   </xs:element>
	  </xs:sequence>
	 </xs:complexType>
	</xs:element>

element **JourneyDetail/MessageList/Message/Header**

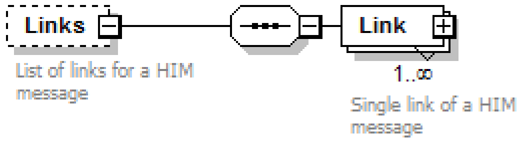
diagram	
type	**xs:string**
properties	isRef 0 content simple
annotation	documentation Contains the header text of a HIM message
source	<xs:element name="Header" type="xs:string"> <xs:annotation> <xs:documentation>Contains the header text of a HIM message</xs:documentation> </xs:annotation> </xs:element>

element **JourneyDetail/MessageList/Message/Text**

diagram	
type	**xs:string**
properties	isRef 0

	content simple
annotation	documentation Contains the message text of a HIM message
source	<xs:element name="Text" type="xs:string"> <xs:annotation> <xs:documentation>Contains the message text of a HIM message</xs:documentation> </xs:annotation> </xs:element>

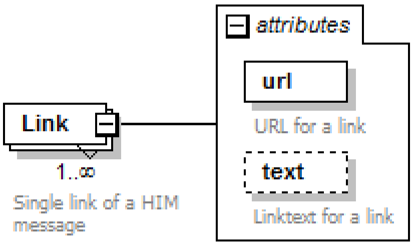
element **JourneyDetail/MessageList/Message/Links**

diagram	 Links List of links for a HIM message Link 1..∞ Single link of a HIM message
properties	isRef 0 minOcc 0 maxOcc 1 content complex
children	Link
annotation	documentation List of links for a HIM message

source	<xs:element name="Links" minOccurs="0">
	  <xs:annotation>
	    <xs:documentation>List of links for a HIM message</xs:documentation>
	  </xs:annotation>
	  <xs:complexType>
	    <xs:sequence>
	      <xs:element name="Link" maxOccurs="unbounded">
	        <xs:annotation>
	          <xs:documentation>Single link of a HIM message</xs:documentation>
	        </xs:annotation>
	        <xs:complexType>
	          <xs:attribute name="url" use="required">
	            <xs:annotation>
	              <xs:documentation>URL for a link</xs:documentation>
	            </xs:annotation>
	          </xs:attribute>
	          <xs:attribute name="text" use="optional">
	            <xs:annotation>
	              <xs:documentation>Linktext for a link</xs:documentation>
	            </xs:annotation>

	</xs:attribute> </xs:complexType> </xs:element> </xs:sequence> </xs:complexType> </xs:element>

element **JourneyDetail/MessageList/Message/Links/Link**

diagram	 attributes url URL for a link text Linktext for a link Link 1..∞ Single link of a HIM message
properties	isRef 0 minOcc 1 maxOcc unbounded content complex
attributes	Name · Type · Use · Default · Fixed · annotation url · · required · · · documentation URL for a link text · · optional · · · documentation Linktext for a link
annotation	documentation Single link of a HIM message

source	<xs:element name="Link" maxOccurs="unbounded">
	 <xs:annotation>
	  <xs:documentation>Single link of a HIM message</xs:documentation>
	 </xs:annotation>
	 <xs:complexType>
	  <xs:attribute name="url" use="required">
	   <xs:annotation>
	    <xs:documentation>URL for a link</xs:documentation>
	   </xs:annotation>
	  </xs:attribute>
	  <xs:attribute name="text" use="optional">
	   <xs:annotation>
	    <xs:documentation>Linktext for a link</xs:documentation>
	   </xs:annotation>

	</xs:attribute> </xs:complexType> </xs:element>

attribute **JourneyDetail/MessageList/Message/Links/Link/@url**

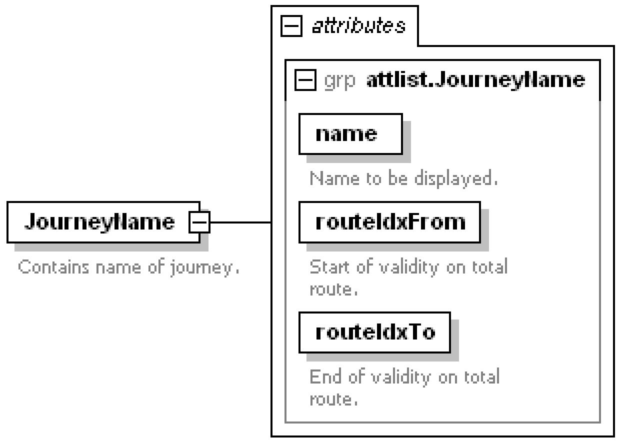
properties	isRef 0 use required
annotation	documentation URL for a link
source	<xs:attribute name="url" use="required"> <xs:annotation> <xs:documentation>URL for a link</xs:documentation> </xs:annotation> </xs:attribute>

attribute **JourneyDetail/MessageList/Message/Links/Link/@text**

properties	isRef 0 use optional
annotation	documentation Linktext for a link
source	<xs:attribute name="text" use="optional"> <xs:annotation> <xs:documentation>Linktext for a link</xs:documentation> </xs:annotation> </xs:attribute>

element **JourneyName**

diagram



used by

element **JourneyDetail**

attributes

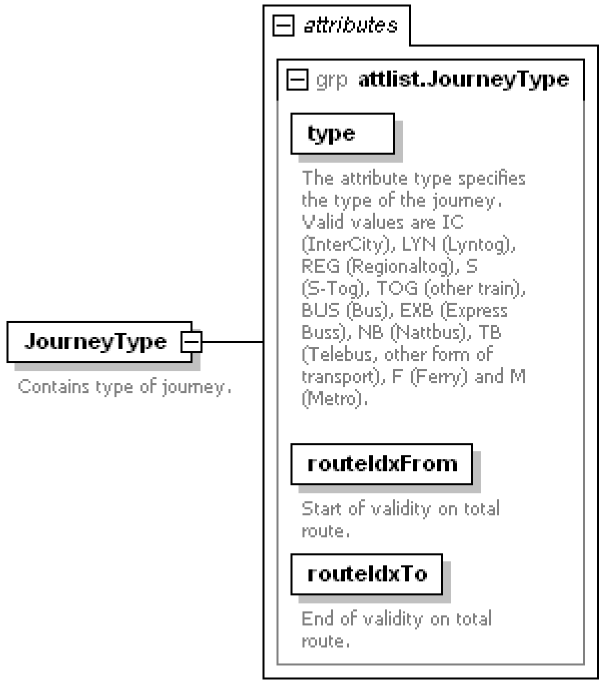
Name	Type	Use	Default	Fixed
name	**xs:string**	required		
routeIdxFrom	**xs:integer**	required		
routeIdxTo	**xs:integer**	required		

source

```
<xs:element name="JourneyName">
 <xs:annotation>
  <xs:documentation>Contains name of journey.</xs:documentation>
 </xs:annotation>
 <xs:complexType>
  <xs:attributeGroup ref="attlist.JourneyName"/>
 </xs:complexType>
</xs:element>
```

element **JourneyType**

diagram


attributes
grp attlist.JourneyType
type
The attribute type specifies the type of the journey. Valid values are IC (InterCity), LYN (Lyntog), REG (Regionaltog), S (S-Tog), TOG (other train), BUS (Bus), EXB (Express Buss), NB (Nattbus), TB (Telebus, other form of transport), F (Ferry) and M (Metro).
routeIdxFrom
Start of validity on total route.
routeIdxTo
End of validity on total route.
JourneyType
Contains type of journey.

used by

element **JourneyDetail**

attributes

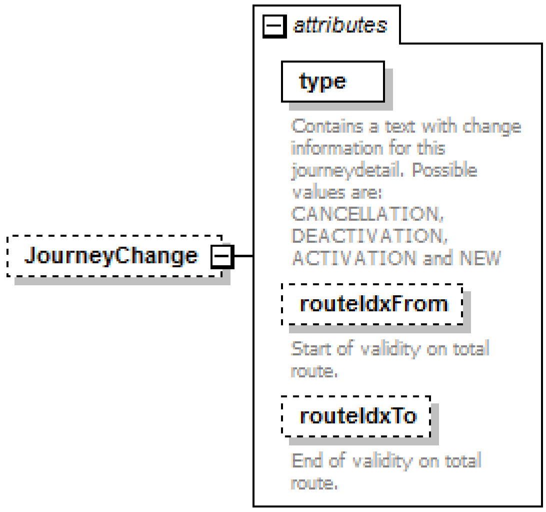
Name	Type	Use	Default	Fixed
type		required		
routeIdxFrom	**xs:integer**	required		
routeIdxTo	**xs:integer**	required		

source

```xml
<xs:element name="JourneyType">
 <xs:annotation>
  <xs:documentation>Contains type of journey.</xs:documentation>
 </xs:annotation>
 <xs:complexType>
  <xs:attributeGroup ref="attlist.JourneyType"/>
 </xs:complexType>
</xs:element>
```

element **JourneyDetail/JourneyChange**

diagram


attributes
type
Contains a text with change information for this journeydetail. Possible values are: CANCELLATION, DEACTIVATION, ACTIVATION and NEW
JourneyChange
routeIdxFrom
Start of validity on total route.
routeIdxTo
End of validity on total route.

properties

isRef	0
minOcc	0
maxOcc	1
content	complex

attributes

Name	Type	Use	Default	Fixed
type	**xs:string**	required		
routeIdxFrom	**xs:integer**			
routeIdxTo	**xs:integer**			

source

```
<xs:element name="JourneyChange" minOccurs="0">
 <xs:complexType>
  <xs:attribute name="type" type="xs:string" use="required">
   <xs:annotation>
    <xs:documentation>Contains a text with change information for this journeydetail. Possible values are: CANCELLATION, DEACTIVATION, ACTIVATION and NEW</xs:documentation>
   </xs:annotation>
  </xs:attribute>
  <xs:attribute name="routeIdxFrom" type="xs:integer">
   <xs:annotation>
    <xs:documentation>Start of validity on total route.</xs:documentation>
   </xs:annotation>
  </xs:attribute>
  <xs:attribute name="routeIdxTo" type="xs:integer">
   <xs:annotation>
    <xs:documentation>End of validity on total route.</xs:documentation>
   </xs:annotation>
  </xs:attribute>
 </xs:complexType>
</xs:element>
```

attribute **JourneyDetail/JourneyChange/@type**

type	**xs:string**
properties	isRef 0 use required
annotation	documentation Contains a text with change information for this journeydetail. Possible values are: CANCELLATION, DEACTIVATION, ACTIVATION and NEW
source	<xs:attribute name="type" type="xs:string" use="required"> <xs:annotation> <xs:documentation>Contains a text with change information for this journeydetail. Possible values are: CANCELLATION, DEACTIVATION, ACTIVATION and NEW</xs:documentation> </xs:annotation> </xs:attribute>

attribute **JourneyDetail/JourneyChange/@routeIdxFrom**

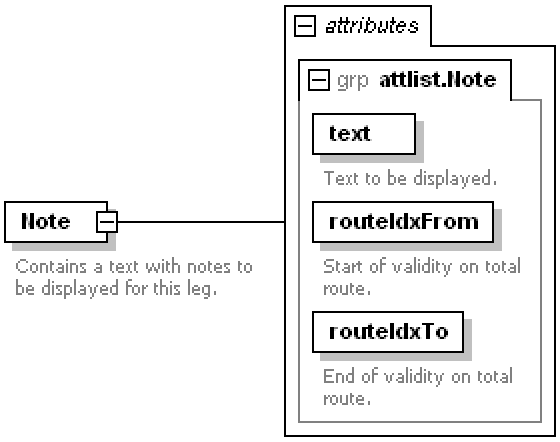
type	**xs:integer**
properties	isRef 0
annotation	documentation Start of validity on total route.
source	<xs:attribute name="routeIdxFrom" type="xs:integer"> <xs:annotation> <xs:documentation>Start of validity on total route.</xs:documentation> </xs:annotation> </xs:attribute>

attribute **JourneyDetail/JourneyChange/@routeIdxTo**

type	**xs:integer**
properties	isRef 0
annotation	documentation End of validity on total route.
source	<xs:attribute name="routeIdxTo" type="xs:integer"> <xs:annotation> <xs:documentation>End of validity on total route.</xs:documentation> </xs:annotation> </xs:attribute>

element **Note**

diagram


attributes
grp attlist.Note
text
Text to be displayed.
routeIdxFrom
Start of validity on total route.
routeIdxTo
End of validity on total route.
Note
Contains a text with notes to be displayed for this leg.

used by element **JourneyDetail**

attributes

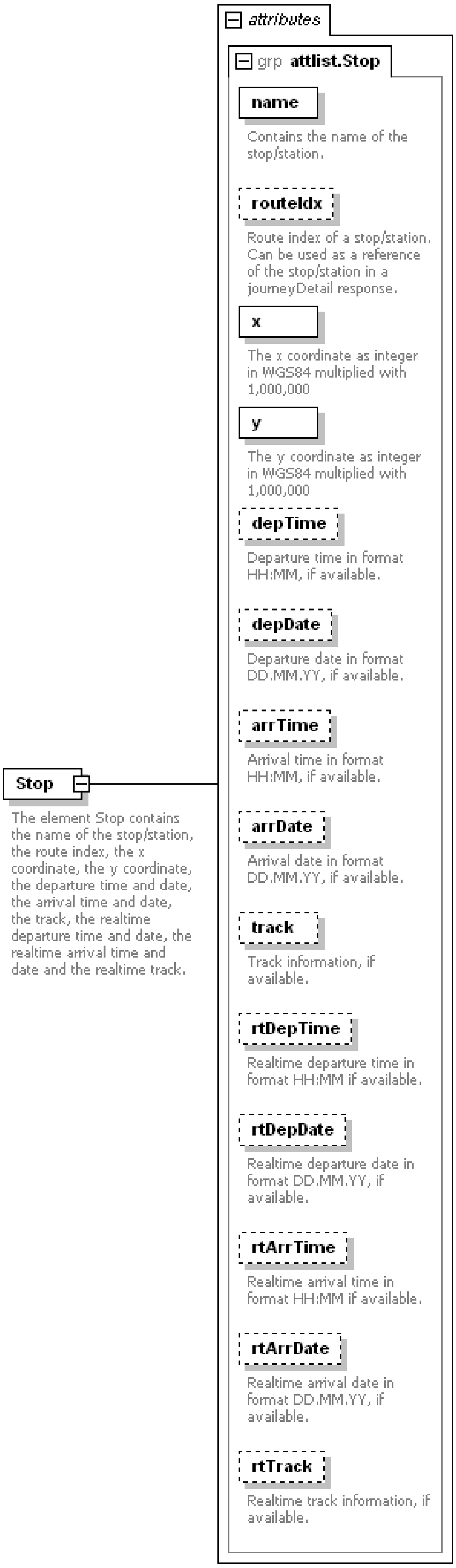
Name	Type	Use	Default	Fixed
text	**xs:string**	required		
routeIdxFrom	**xs:integer**	required		
routeIdxTo	**xs:integer**	required		

source

```
<xs:element name="Note">
 <xs:annotation>
  <xs:documentation>Contains a text with notes to be displayed for this leg.</xs:documentation>
 </xs:annotation>
 <xs:complexType>
  <xs:attributeGroup ref="attlist.Note"/>
 </xs:complexType>
</xs:element>
```

element **Stop**

diagram


attributes
grp attlist.Stop
name
Contains the name of the stop/station.
routeIdx
Route index of a stop/station. Can be used as a reference of the stop/station in a journeyDetail response.
x
The x coordinate as integer in WGS84 multiplied with 1,000,000
y
The y coordinate as integer in WGS84 multiplied with 1,000,000
depTime
Departure time in format HH:MM, if available.
depDate
Departure date in format DD.MM.YY, if available.
arrTime
Arrival time in format HH:MM, if available.
arrDate
Arrival date in format DD.MM.YY, if available.
track
Track information, if available.
rtDepTime
Realtime departure time in format HH:MM if available.
rtDepDate
Realtime departure date in format DD.MM.YY, if available.
rtArrTime
Realtime arrival time in format HH:MM if available.
rtArrDate
Realtime arrival date in format DD.MM.YY, if available.
rtTrack
Realtime track information, if available.
Stop
The element Stop contains the name of the stop/station, the route index, the x coordinate, the y coordinate, the departure time and date, the arrival time and date, the track, the realtime departure time and date, the realtime arrival time and date and the realtime track.

used by element **JourneyDetail**

attributes

Name	Type	Use	Default	Fixed
name	**xs:string**	required		
routeIdx	**xs:integer**	optional		
x	**xs:integer**	required		
y	**xs:integer**	required		
depTime	**xs:string**	optional		
depDate	**xs:string**	optional		
arrTime	**xs:string**	optional		
arrDate	**xs:string**	optional		
track	**xs:string**	optional		
rtDepTime	**xs:string**	optional		
rtDepDate	**xs:string**	optional		
rtArrTime	**xs:string**	optional		
rtArrDate	**xs:string**	optional		
rtTrack	**xs:string**	optional		

source

```
<xs:element name="Stop">
 <xs:annotation>
  <xs:documentation>The element Stop contains the name of the stop/station, the route index, the x coordinate, the y coordinate, the departure time and date, the arrival time and date, the track, the realtime departure time and date, the realtime arrival time and date and the realtime track.</xs:documentation>
 </xs:annotation>
 <xs:complexType>
  <xs:attributeGroup ref="attlist.Stop"/>
 </xs:complexType>
</xs:element>
```

attributeGroup **attlist.JourneyName**

used by element **JourneyName**

attributes

Name	Type	Use	Default	Fixed
name	**xs:string**	required		
routeIdxFrom	**xs:integer**	required		
routeIdxTo	**xs:integer**	required		

source
```
<xs:attributeGroup name="attlist.JourneyName">
 <xs:attribute name="name" type="xs:string" use="required">
  <xs:annotation>
   <xs:documentation>Name to be displayed.</xs:documentation>
  </xs:annotation>
 </xs:attribute>
 <xs:attribute name="routeIdxFrom" type="xs:integer" use="required">
  <xs:annotation>
   <xs:documentation>Start of validity on total route.</xs:documentation>
  </xs:annotation>
 </xs:attribute>
 <xs:attribute name="routeIdxTo" type="xs:integer" use="required">
  <xs:annotation>
   <xs:documentation>End of validity on total route.</xs:documentation>
  </xs:annotation>
 </xs:attribute>
</xs:attributeGroup>
```

attributeGroup **attlist.JourneyType**

used by element **JourneyType**

attributes

Name	Type	Use	Default	Fixed
type		required		
routeIdxFrom	**xs:integer**	required		
routeIdxTo	**xs:integer**	required		

source
```
<xs:attributeGroup name="attlist.JourneyType">
 <xs:attribute name="type" use="required">
  <xs:annotation>
   <xs:documentation>The attribute type specifies the type of the journey. Valid values are IC (InterCity), LYN (Lyntog), REG (Regionaltog), S (S-Tog), TOG (other train), BUS (Bus), EXB (Express Buss), NB (Nattbus), TB (Telebus, other form of transport), F (Ferry) and M (Metro).
          </xs:documentation>
```

```
    </xs:annotation>
    <xs:simpleType>
      <xs:restriction base="xs:string">
        <xs:enumeration value="IC"/>
        <xs:enumeration value="LYN"/>
        <xs:enumeration value="REG"/>
        <xs:enumeration value="S"/>
        <xs:enumeration value="TOG"/>
        <xs:enumeration value="BUS"/>
        <xs:enumeration value="EXB"/>
        <xs:enumeration value="NB"/>
        <xs:enumeration value="TB"/>
        <xs:enumeration value="F"/>
        <xs:enumeration value="M"/>
      </xs:restriction>
    </xs:simpleType>
  </xs:attribute>
  <xs:attribute name="routeIdxFrom" type="xs:integer" use="required">
    <xs:annotation>
      <xs:documentation>Start of validity on total route.</xs:documentation>
    </xs:annotation>
  </xs:attribute>
  <xs:attribute name="routeIdxTo" type="xs:integer" use="required">
    <xs:annotation>
      <xs:documentation>End of validity on total route.</xs:documentation>
    </xs:annotation>
  </xs:attribute>
</xs:attributeGroup>
```

attributeGroup **attlist.Note**

used by element **Note**

attributes

Name	Type	Use	Default	Fixed
text	**xs:string**	required		
routeIdxFrom	**xs:integer**	required		
routeIdxTo	**xs:integer**	required		

source

```
<xs:attributeGroup name="attlist.Note">
 <xs:attribute name="text" type="xs:string" use="required">
  <xs:annotation>
   <xs:documentation>Text to be displayed.</xs:documentation>
  </xs:annotation>
 </xs:attribute>
 <xs:attribute name="routeIdxFrom" type="xs:integer" use="required">
  <xs:annotation>
   <xs:documentation>Start of validity on total route.</xs:documentation>
  </xs:annotation>
 </xs:attribute>
 <xs:attribute name="routeIdxTo" type="xs:integer" use="required">
  <xs:annotation>
   <xs:documentation>End of validity on total route.</xs:documentation>
  </xs:annotation>
 </xs:attribute>
</xs:attributeGroup>
```

attributeGroup **attlist.Stop**

used by element **Stop**

attributes

Name	Type	Use	Default	Fixed
name	**xs:string**	required		
routeIdx	**xs:integer**	optional		
x	**xs:integer**	required		

y	**xs:integer**	required
depTime	**xs:string**	optional
depDate	**xs:string**	optional
arrTime	**xs:string**	optional
arrDate	**xs:string**	optional
track	**xs:string**	optional
rtDepTime	**xs:string**	optional
rtDepDate	**xs:string**	optional
rtArrTime	**xs:string**	optional
rtArrDate	**xs:string**	optional
rtTrack	**xs:string**	optional

source

```xml
<xs:attributeGroup name="attlist.Stop">
 <xs:attribute name="name" type="xs:string" use="required">
  <xs:annotation>
   <xs:documentation>Contains the name of the stop/station.
          </xs:documentation>
  </xs:annotation>
 </xs:attribute>
 <xs:attribute name="routeIdx" type="xs:integer" use="optional">
  <xs:annotation>
   <xs:documentation>Route index of a stop/station. Can be used as a reference of the stop/station in a journeyDetail response.</xs:documentation>
  </xs:annotation>
 </xs:attribute>
 <xs:attribute name="x" type="xs:integer" use="required">
  <xs:annotation>
   <xs:documentation>The x coordinate as integer in WGS84 multiplied with 1,000,000</xs:documentation>
  </xs:annotation>
 </xs:attribute>
 <xs:attribute name="y" type="xs:integer" use="required">
  <xs:annotation>
```

```
    <xs:documentation>The y coordinate as integer in WGS84 multiplied with 1,000,000</xs:documentation>
  </xs:annotation>
</xs:attribute>
<xs:attribute name="depTime" type="xs:string" use="optional">
  <xs:annotation>
    <xs:documentation>Departure time in format HH:MM, if available.
                </xs:documentation>
  </xs:annotation>
</xs:attribute>
<xs:attribute name="depDate" type="xs:string" use="optional">
  <xs:annotation>
    <xs:documentation>Departure date in format DD.MM.YY, if available.
                </xs:documentation>
  </xs:annotation>
</xs:attribute>
<xs:attribute name="arrTime" type="xs:string" use="optional">
  <xs:annotation>
    <xs:documentation>Arrival time in format HH:MM, if available.
                </xs:documentation>
  </xs:annotation>
</xs:attribute>
<xs:attribute name="arrDate" type="xs:string" use="optional">
  <xs:annotation>
    <xs:documentation>Arrival date in format DD.MM.YY, if available.
                </xs:documentation>
  </xs:annotation>
</xs:attribute>
<xs:attribute name="track" type="xs:string" use="optional">
  <xs:annotation>
    <xs:documentation>Track information, if available.
```

```
         </xs:documentation>
 </xs:annotation>
</xs:attribute>
<xs:attribute name="rtDepTime" type="xs:string" use="optional">
 <xs:annotation>
  <xs:documentation>Realtime departure time in format HH:MM if available.
         </xs:documentation>
 </xs:annotation>
</xs:attribute>
<xs:attribute name="rtDepDate" type="xs:string" use="optional">
 <xs:annotation>
  <xs:documentation>Realtime departure date in format DD.MM.YY, if available.
         </xs:documentation>
 </xs:annotation>
</xs:attribute>
<xs:attribute name="rtArrTime" type="xs:string" use="optional">
 <xs:annotation>
  <xs:documentation>Realtime arrival time in format HH:MM if available.
         </xs:documentation>
 </xs:annotation>
</xs:attribute>
<xs:attribute name="rtArrDate" type="xs:string" use="optional">
 <xs:annotation>
  <xs:documentation>Realtime arrival date in format DD.MM.YY, if available.
         </xs:documentation>
 </xs:annotation>
</xs:attribute>
<xs:attribute name="rtTrack" type="xs:string" use="optional">
 <xs:annotation>
  <xs:documentation>Realtime track information, if available.
```

```
          </xs:documentation>
  </xs:annotation>
 </xs:attribute>
</xs:attributeGroup>
```