Hogia
Public Transport Systems

PubTrans® 5

SIRI-ET Producer 2.0
Interface Specification

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SIRI-ET Producer
Interface Specification

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Revision History

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1 Introduction

1.1 Document Objectives

This document describes the SIRI-ET interface between PubTrans SIRI-ET producer and external consumers.

1.2 Change Notes

1.3 Terminology

Term	Definition
SIRI	Service Interface for Real Time Information
GID	Global Identifier. 16 digit number in central repository with specific format.
CALL	A visit by a VEHICLE to a specific SCHEDULED STOP POINT as it follows the JOURNEY PATTERN of its VEHICLE JOURNEY to achieve a set of planned and estimated PASSING TIMEs. A VEHICLE may make more than one CALL to the same stop in the course of a JOURNEY: different CALLs may typically be distinguished by a Visit Number count. The CALL may have real time data associated with it. Note: A SIRI CALL may be regarded as a useful optimisation of a more normalised set of structures that are articulated separately in Transmodel. CALL combines the Transmodel elements of POINT IN JOURNEY PATTERN in with ESTIMATED PASSING TIME, OBSERVED PASSING TIME, & TARGET PASSING TIME, along with real time elements and other stop properties pertaining to the visit. Note that SIRI segregates all elements pertaining to arrival from those pertaining to departure, again facilitating the validation and implementation of actual systems.
DATED VEHICLE JOURNEY	A particular journey of a vehicle on a particular OPERATING DAY, including all modifications decided by the control staff. (Transmodel)
DIRECTION	Classification for the general orientation of ROUTEs. (Transmodel)
JOURNEY PATTERN	An ordered list of SCHEDULED STOP POINTs and TIMING POINTs on a single ROUTE, describing the pattern of working for public transport vehicles. A JOURNEY PATTERN may pass through the same POINT more than once. The first point of a JOURNEY PATTERN is the origin. The last point is the destination. Every VEHICLE JOURNEY has a JOURNEY PATTERN associated with it. In SIRI, JOURNEY PATTERNs are not explicitly exposed in the interface: the LINE and Route DIRECTION elements that appear on VEHICLE JOURNEYS are assumed to be derived from the associated journey pattern. (Transmodel)
LINE	A group of ROUTEs which is generally known to the public by a similar name or number. (Transmodel)

Term	Definition
LINE DIRECTION	A classification for the general orientation of ROUTEs. (Transmodel)
OPERATING DAY	A day of public transport operation in a specific calendar. An OPERATING DAY may last more than 24 h. (Transmodel)
PARKING POINT	A TIMING POINT where vehicles may stay unattended for a long time. A vehicle's return to park at a PARKING POINT marks the end of a BLOCK. (Transmodel)
PASSING TIME	Time data concerning public transport vehicles passing a particular POINT; e.g. arrival time, departure time or waiting time. (Transmodel)
POINT	A 0-dimensional node of the network used for the spatial description of the network. POINTs may be located by a LOCATION in a given LOCATING SYSTEM (Transmodel)
ROUTE	An ordered list of located POINTs defining one single path through the road (or rail) network. A ROUTE may pass through the same POINT more than once. Each JOURNEY PATTERN may be associated with a particular ROUTE. (Transmodel)
SERVICE JOURNEY INTERCHANGE	The SERVICE JOURNEY INTERCHANGE entity is used to record a quality parameter for ensuring connections, providing the maximum time a vehicle may wait for connecting vehicles. (Transmodel)
SERVICE LINK	An oriented spatial object of dimension 1 with view to the overall description of a network, describing a connection between two POINTs. (Transmodel)
SCHEDULED STOP POINT	A POINT where passengers can board or alight from vehicles. Note that in SIRI 1.0 was called STOP POINT. It has been renamed to SCHEDULED STOP POINT to distinguish it from STOP PLACE. (Transmodel)
STOP AREA	A group of STOP POINTs close to each other, often referred to by a common name. (Transmodel)
TIMING POINT	A POINT against which the timing information necessary to build schedules may be recorded. (Transmodel) In SIRI, may be, but is not necessarily, a SCHEDULED STOP POINT. In many systems, Target Times for stops that are not timing points are interpolated simplistically from the timing points by either the scheduling system, or the AVMS system, and may represent a lower level of accuracy of prediction.
VEHICLE	A public transport vehicle used for carrying passengers.
VEHICLE JOURNEY	A VEHICLE JOURNEY is the defined movement of a vehicle using a specified JOURNEY PATTERN on a particular ROUTE. (Transmodel)

2 SIRI Estimated Timetable

2.1 Overview

Public transport services rely increasingly on information systems to ensure reliable, efficient operation and widely accessible, accurate passenger information.

Service Interface for Real-time Information (SIRI) is intended to be used to exchange information between servers containing real-time public transport vehicle or journey time data.

SIRI Estimated Timetable (SIRI-ET) is focused on providing the current status on all known vehicle journeys.

This document describes how to interface the PubTrans SIRI-ET Provider Service using the SIRI Publish/Subscribe pattern of exchange with the Direct Delivery as delivery pattern.

The PubTrans SIRI-ET producer system will also support the SIRI Request/Reply pattern with direct delivery.

2.2 Process

The subscription is initiated when an external SIRI-ET consumer sends a Subscription Request to the subscription service of the PubTrans SIRI-ET producer system.

PubTrans SIRI-ET producer system will then respond with a Subscription Response verifying that the request was handled and thereafter start sending real-time information contained in service deliveries from its producer service.

Information regarding several vehicle journeys may be sent in the same Service Delivery to avoid overloading the message exchange.

PubTrans SIRI-ET producer service will keep sending information until the subscription is terminated or the lease time (InitialTerminationTime) from the subscription request expires.

2.3 Content

SIRI has a comprehensive data model with many optional and alternative elements and attributes. It is possible to further extend the model by including custom XML in the Extension elements that are defined throughout the SIRI data model.

The SIRI specification recommends that the details about what messages, elements and content to actually exchange in a specific context should be specified in advance between the participants. This document specifies the PubTrans SIRI interface in detail with actual provided and expected content element by element. Message exchange sequences and content usage are described for some common scenarios.

Dynamic requests involving the Capability and Permission matrices and Detail-level filtering are not supported.

2.4 SIRI Version

The PubTrans SIRI-ET Producer service provides and expects information according to the coming SIRI 2.0 as submitted for voting to CEN from CEN TC278 WG3 SG7. See link to XSD-Schema for the coming EN V2.0 on the VDV website. The elements supported are stated in sections below.

2.5 Transport Protocol

PubTrans SIRI-ET producer service uses and expects SOAP compatible with *siri_wsProducer-Document.wsdl* and *siri_wsConsumer-Document.wsdl*.

2.6 Understanding Incremental Updates

To reduce the amount of data transferred from producer to consumer the SIRI concept of incremental updates has been applied with an optimised approach.

Using this mechanism the same information is not repeated over and over again, instead only updated attributes for a stop are transferred, and only updates for those stops that have any updates are transferred.

There are some exceptions to this reduction mechanism; the delivered updates must be valid according to the applicable SIRI XML Schema definitions. This means that mandatory elements will always be included when their parent element is included in the update, whether their content is changed or not.

Note that this reduction mechanism does not rule out that updates occasionally include previously transferred values for technical reasons or as a feature for consumers.

2.7 Date and Time Format

All timestamps are stated in UTC (Coordinated Universal Time). The use of UTC avoids problems with changeover between summer and winter time zones. Differences from the UTC time zone are coded in accordance with ISO 8601 (e.g.: 2000-04-07T18:39:00+01:00).

In accordance with ISO 8601, if no time difference is given, the time is in UTC; this may be further indicated by the presence of a Z suffix (2002-04-30T12:00:00 corresponds to 2002-04-30T12:00:00Z). In other words, the first 19 characters are obligatory and correspond to local time or UTC.

Time units less than one second are ignored.

3 Subscriptions

To start a subscription the external SIRI-ET consumer system should send a subscription request to the subscribe endpoint of the PubTrans SIRI-ET producer system.

If a subscription request is submitted with the same SubscriptionIdentifier as a subscription that already exists, the existing subscription will be deleted and a new subscription created in its place. Logically this is the same as sending a DeleteSubscription message, followed by a new Subscribe request message to create a new subscription.

3.1 Subscribe

These are the attribute we expect in the Subscribe Request (additional attributes will be ignored):

Attributes		**Description**
SubscriptionRequestInfo	1:1	
- RequestTimestamp	1:1	Timestamp of the request
- Address	0:1	URL of the consumer
- RequestorRef	1:1	Pre-determined Participant Reference of the consumer.
Request	1:1	
- EstimatedTimetableSubscriptionRequest	1:*	See separate section below
RequestExtension	1:1	Should be empty.

3.2 EstimatedTimetableSubscriptionRequest

Attributes		**Description**
SubscriptionIdentifier	1:1	Identifier for the subscription that is unique in scope of the subscriber, i.e. unique in scope of the consumers pre-determined Participant Reference (=RequestorRef).
InitialTerminationTime	1:1	End time for this subscription. After this time no more messages will be sent from the producer.
EstimatedTimetableRequest	1:1	See separate section below.
IncrementalUpdates	1:1	Must be set to **true**.

ChangeBeforeUpdates	1:1	The amount of change to the arrival or departure time that can happen before an update is sent. **Ignored.**

3.3 EstimatedTimetableRequest

Attributes		**Description**
RequestTimestamp	1:1	Timestamp of the request
Lines	0:1	Filter the results to include only VEHICLEs along the given LINEs.
- LineDirection	1:*	Elements for a LINE and DIRECTION.
o LineRef	1:1	Line Reference
o DirectionRef	0:1	Direction Reference. Allowed values are 1 or 2.

3.4 Sample Subscribe

```
<wsdl:Subscribe xmlns:wsdl="http://wsdl.siri.org.uk"
xmlns:siri="http://www.siri.org.uk/siri" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xsi:schemaLocation="http://wsdl.siri.org.uk file:///C:/Siri/SiriXml-
v2.0h/xsd/wsdl_model/siri_wsProducer-Framework.xsd">
  <SubscriptionRequestInfo>
    <siri:RequestTimestamp>2012-09-05T15:45:47+02:00</siri:RequestTimestamp>
    <siri:Address>http://127.0.0.1:9003</siri:Address>
    <siri:RequestorRef>XYZ_CONSUMER</siri:RequestorRef>
  </SubscriptionRequestInfo>
  <Request>
    <siri:EstimatedTimetableSubscriptionRequest>
      <siri:SubscriptionIdentifier>L9011001000100000</siri:SubscriptionIdentifier>
      <siri:InitialTerminationTime>2012-09-
07T15:45:47+02:00</siri:InitialTerminationTime>
      <siri:EstimatedTimetableRequest>
        <siri:RequestTimestamp>2012-09-05T15:45:47+02:00</siri:RequestTimestamp>
        <siri:Lines>
          <siri:LineDirection>
            <siri:LineRef>9011001000100000</siri:LineRef>
          </siri:LineDirection>
        </siri:Lines>
      </siri:EstimatedTimetableRequest>
      <siri:IncrementalUpdates>true</siri:IncrementalUpdates>
      <siri:ChangeBeforeUpdates>PT0M</siri:ChangeBeforeUpdates>
    </siri:EstimatedTimetableSubscriptionRequest>
  </Request>
  <RequestExtension/>
</wsdl:Subscribe>
```

3.5 SubscribeResponse

When the subscription service of PubTrans SIRI ET producer system gets a Subscribe request it should answer with a SubscribeResponse verifying the request.

Attributes		**Description**
SubscriptionAnswerInfo	1:1	
- ResponseTimestamp	1:1	Time individual response element was created.
- ResponderRef	0:1	Pre-determined Participant reference of the producer. (=ProducerRef)
Answer	1:1	
- ResponseStatus	1:*	Status information about the request, or else error conditions.
- ServiceStartedTime	0:1	Time the producer service started
AnswerExtension	1:1	Should be empty.

3.6 ResponseStatus

Attributes		**Description**
ResponseTimestamp	1:1	Time individual response element was created.
SubscriptionRef	1:1	This is a reference to the SubscriptionIdentifier of the corresponding EstimatedTimetableSubscriptionRequest.
Status	0:1	Whether the request could be processed successfully or not. Default is true.
ErrorCondition	0:1	Error conditions that apply to a service request.

If an error occurs then an ErrorCondition element will be included containing one of the 15 valid error elements according to the SIRI standard and also a Description if applicable.

3.7 Sample SubscriptionResponse

```
<wsdl:SubscribeResponse xmlns:wsdl="http://wsdl.siri.org.uk"
xmlns:siri="http://www.siri.org.uk/siri" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xsi:schemaLocation="http://wsdl.siri.org.uk file:///C:/Siri/SiriXml-
v2.0h/xsd/wsdl_model/siri_wsProducer-Framework.xsd">
  <SubscriptionAnswerInfo>
    <siri:ResponseTimestamp>2012-09-05T15:45:48.6027508+02:00</siri:ResponseTimestamp>
```

```
    <siri:ResponderRef>PubTransETProducer</siri:ResponderRef>
  </SubscriptionAnswerInfo>
  <Answer>
    <siri:ResponseStatus>
      <siri:ResponseTimestamp>2012-09-05T15:45:48.6027508+02:00</siri:ResponseTimestamp>
      <siri:SubscriptionRef>1</siri:SubscriptionRef>
      <siri:Status>true</siri:Status>
    </siri:ResponseStatus>
    <siri:ResponseStatus>
      <siri:ResponseTimestamp>2012-09-05T15:45:48.6027508+02:00</siri:ResponseTimestamp>
      <siri:SubscriptionRef>2</siri:SubscriptionRef>
      <siri:Status>false</siri:Status>
      <siri:ErrorCondition>
        <siri:NoInfoForTopicError/>
      </siri:ErrorCondition>
    </siri:ResponseStatus>
    <siri:ResponseStatus>
      <siri:ResponseTimestamp>2012-09-05T15:45:48.6027508+02:00</siri:ResponseTimestamp>
      <siri:SubscriptionRef>3</siri:SubscriptionRef>
      <siri:Status>false</siri:Status>
      <siri:ErrorCondition>
        <siri:OtherError/>
        <siri:Description>No such line: XYZ</siri:Description>
      </siri:ErrorCondition>
    </siri:ResponseStatus>
    <siri:ServiceStartedTime>2012-09-05T12:15:47.6027123+02:00</siri:ServiceStartedTime>
  </Answer>
  <AnswerExtension/>
</wsdl:SubscribeResponse>
```

4 Alive handling

4.1.1 Using Heartbeats

Heartbeats can be provided from the PubTrans SIRI-ET producer service.

If used, heartbeats will be sent with a pre-defined frequency. A single heartbeat message is sent for each subscriber channel.

If no heartbeats or other messages from the producer service have been received within a configured duration the consumer should try to re-subscribe to the service.

Also; if the ServiceStartedTime of the heartbeat notification differs from what was last received, it is assumed that the producer has restarted, and the consumer should then re-subscribe.

4.1.2 Using CheckStatus Requests

As an alternative to using heartbeats, the consumer can instead check if the producer is alive by sending CheckStatus requests to the producer at pre-defined intervals. If the returned ServiceStartedTime of the CheckStatusResponse differs from what was last received, it can be assumed that the producer has restarted, and the consumer should then re-subscribe.

4.2 Re-subscription

It is the responsibility of the consumer to assure that the subscriptions are alive and re-subscribe if needed.

If the consumer does not reuse the same SubscriptionIdentifier values for the same subscribed content when re-subscribing it should send a DeleteSubscriptionRequest before sending the Subscribe request to avoid the risk of duplicate subscriptions.

4.3 NotifyHeartbeat

Attributes		**Description**
HeartbeatNotify	1:1	
- RequestTimestamp	1:1	Time of Heartbeat Notification
- ProducerRef	0:1	Pre-determined participant reference of the producer.
Notification	1:1	
- Status	0:1	Whether the service is available. False if not available. Default is true.
- ErrorCondition	0:1	Error conditions that apply to the heartbeat notification.
- ServiceStartedTime	0:1	Specifies the time of the start of the service.
SiriExtension	1:1	Should be empty

4.4 Sample NotifyHeartbeat

```
<wsdl:NotifyHeartbeat xmlns:wsdl="http://wsdl.siri.org.uk"
xmlns:siri="http://www.siri.org.uk/siri" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xsi:schemaLocation="http://wsdl.siri.org.uk file:///C:/Siri/SiriXml-
v2.0h/xsd/wsdl_model/siri_wsConsumer-Framework.xsd">
  <HeartbeatNotifyInfo>
    <siri:RequestTimestamp>2012-10-03T09:49:04.838471+02:00</siri:RequestTimestamp>
    <siri:ProducerRef>PubTransETProducer</siri:ProducerRef>
  </HeartbeatNotifyInfo>
  <Notification>
    <siri:Status>true</siri:Status>
    <siri:ServiceStartedTime>2012-10-03T05:49:04.838471+02:00</siri:ServiceStartedTime>
  </Notification>
  <SiriExtension/>
</wsdl:NotifyHeartbeat>
```

4.5 CheckStatus

If the consumer wishes to determine whether the service is still "alive", it sends a CheckStatus request to the producers CheckStatus endpoint and waits for the reply (CheckStatusResponse).

Attributes		**Description**
Request	1:1	
- RequestTimestamp	1:1	Time of the request
- RequestorRef	1:1	Pre-determined participant reference of the consumer.
RequestExtension	1:1	Should be empty.

4.6 Sample CheckStatus

```
<wsdl:CheckStatus xmlns:wsdl="http://wsdl.siri.org.uk"
xmlns:siri="http://www.siri.org.uk/siri" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xsi:schemaLocation="http://wsdl.siri.org.uk file:///C:/Siri/SiriXml-
v2.0h/xsd/wsdl_model/siri_wsProducer-Framework.xsd">
  <Request>
    <siri:RequestTimestamp>2012-10-03T09:49:04.838471+02:00</siri:RequestTimestamp>
    <siri:RequestorRef>XYZ_CONSUMER</siri:RequestorRef>
  </Request>
  <RequestExtension/>
</wsdl:CheckStatus>
```

4.7 CheckStatusResponse

The CheckStatusResponse indicates the availability of the producer. If the system is completely unavailable there will be no reply.

Attributes		**Description**
CheckStatusAnswerInfo	1:1	
- ResponseTimestamp	1:1	Time of the response.
- ProducerRef	1:1	Pre-determined participant reference of the producer.
Answer	1:1	
- Status	0:1	Whether the service is available. False if not available. Default is true.
- ErrorCondition	0:1	Error Condition that applies to a CheckStatusResponse.
- ServiceStartedTime	0:1	Specifies the time of the start of the service. If the service is not available to deliver data, no value should be given here.
AnswerExtension	1:1	Should be empty.

If an error occurs then an ErrorCondition element will be included containing one of the two valid error elements according to the SIRI standard and also a Description if applicable.

4.8 Sample CheckStatusResponse

```
<wsdl:CheckStatusResponse xmlns:wsdl="http://wsdl.siri.org.uk"
xmlns:siri="http://www.siri.org.uk/siri" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xsi:schemaLocation="http://wsdl.siri.org.uk file:///C:/Siri/SiriXml-
v2.0h/xsd/wsdl_model/siri_wsProducer-Framework.xsd">
  <CheckStatusAnswerInfo>
    <siri:ResponseTimestamp>2012-10-03T09:49:04.838471+02:00</siri:ResponseTimestamp>
    <siri:ProducerRef>PubTransETProducer</siri:ProducerRef>
  </CheckStatusAnswerInfo>
  <Answer>
    <siri:Status>true</siri:Status>
    <siri:ServiceStartedTime>2012-10-03T05:49:04.838471+02:00</siri:ServiceStartedTime>
  </Answer>
  <AnswerExtension/>
</wsdl:CheckStatusResponse>
```

5 Establishing current state at start of subscription

The producer will not send all current information about the vehicle journeys when starting a subscription, instead updates will be sent as they occur. If the consumer wants all data to be sent out on subscription start, the consumer should send a DataSupply request to get that information.

5.1 DataSupply

To initiate the process the consumer sends a DataSupply request message to the GetData endpoint of the producer and waits for a reply (DataSupplyResponse).

Attributes		**Description**
DataSupplyRequestInfo	1:1	
- RequestTimestamp	1:1	Time individual data supply request was created.
- ConsumerRef	0:1	Pre-determined participant reference of the consumer.
Request	1:1	
- AllData	0:1	Always set to **true** to signify that all current information for all subscribed vehicle journeys is to be returned.
RequestExtension	1:1	Should be empty.

5.2 Sample DataSupply

```
<wsdl:DataSupply xmlns:wsdl="http://wsdl.siri.org.uk"
xmlns:siri="http://www.siri.org.uk/siri" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xsi:schemaLocation="http://wsdl.siri.org.uk file:///C:/Siri/SiriXml-
v2.0h/xsd/wsdl_model/siri_wsProducer-Framework.xsd">
  <DataSupplyRequestInfo>
    <siri:RequestTimestamp>2012-10-03T09:49:04.838471+02:00</siri:RequestTimestamp>
    <siri:ConsumerRef>XYZ_CONSUMER</siri:ConsumerRef>
  </DataSupplyRequestInfo>
  <Request>
    <siri:AllData>true</siri:AllData>
  </Request>
  <RequestExtension/>
</wsdl:DataSupply>
```

5.3 DataSupplyResponse

In response to the DataSupply request the producer will supply all current data matching the subscriptions for that subscriber

Attributes		**Description**
DataSupplyAnswerInfo	1:1	
- ResponseTimestamp	1:1	Time of the response.
- ProducerRef	0:1	Pre-determined participant reference of the producer.
Answer	1:1	
- EstimatedTimetableDelivery	1:*	See “Estimated Timetable messages” chapter for details and examples of this.
AnswerExtension	1:1	Should be empty.

5.4 Sample DataSupplyResponse

```
<wsdl:DataSupplyResponse xmlns:wsdl="http://wsdl.siri.org.uk"
xmlns:siri="http://www.siri.org.uk/siri" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xsi:schemaLocation="http://wsdl.siri.org.uk file:///C:/Siri/SiriXml-
v2.0h/xsd/wsdl_model/siri_wsProducer-Framework.xsd">
  <DataSupplyAnswerInfo>
    <siri:ResponseTimestamp>2012-08-16T14:11:24.0346742+02:00</siri:ResponseTimestamp>
    <siri:ProducerRef>PubTransETProducer</siri:ProducerRef>
  </DataSupplyAnswerInfo>
  <Answer>
    <siri:EstimatedTimetableDelivery version="2.0">
      <!—See “Estimated Timetable messages” chapter for sample contents of an Estimated-
TimetableDelivery -->
    </siri:EstimatedTimetableDelivery>
  </Answer>
  <AnswerExtension/>
</wsdl:DataSupplyResponse>
```

6 Updating current state

When then subscription is established each relevant update of the subscribed journeys is reported.

The information is wrapped within a ServiceDelivery which contains one or more EstimatedTimetableDelivery elements (one per subscription). Each EstimatedTimetableDelivery contains one or many EstimatedJourneyVersionFrame elements. Each EstimatedJourneyVersionFrame represents the update of an estimated journey version frame covered by the subscription which in turn contains one or many estimated vehicle journeys and zero or serveral estimated service journey interchanges.

Information concerning an estimated timetable may be cached for a short time so that it can be sent together with updates of other estimated timetables in the same Service Delivery to avoid overloading the message exchange. The maximum additional latency incurred by this mechanism is in the range of one second.

Note that EstimatedJourneyVersionFrame elements will only be included in the Service Delivery for those timetables that have updated information and that normally only updated sub-elements of the EstimatedJourneyVersionFrame will be provided.

7 Terminate Subscriptions

7.1 DeleteSubscription

The consumer terminates its subscriptions to a service by sending a DeleteSubscription request to the ManageSubscriptions endpoint of the producer. A DeleteSubscription request may contain either one or more specific subscription identifiers, or a special value of **All**, indicating that all subscriptions for the subscriber should be terminated.

Attributes		**Description**
DeleteSubscriptionInfo	1:1	
- RequestTimestamp	1:1	Creation time of notice of change message.
- RequestorRef	1:1	Pre-determined Participant Reference of the consumer.
Request	1:1	
- All	0:1	Terminate all subscriptions for the Subscriber.
- SubscriptionRef	0:*	Identifies a specific subscription to be terminated.
RequestExtension	1:1	Should be empty.

Note that either **All** or one or more **SubscriptionRef** should be supplied.

7.2 Sample DeleteSubscription

Sample 1:

```
<wsdl:DeleteSubscription xmlns:wsdl="http://wsdl.siri.org.uk"
xmlns:siri="http://www.siri.org.uk/siri" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xsi:schemaLocation="http://wsdl.siri.org.uk file:///C:/Siri/SiriXml-
v2.0h/xsd/wsdl_model/siri_wsProducer-Framework.xsd">
  <DeleteSubscriptionInfo>
    <siri:RequestTimestamp>2012-10-03T09:49:04.838471+02:00</siri:RequestTimestamp>
    <siri:RequestorRef>XYZ_CONSUMER</siri:RequestorRef>
  </DeleteSubscriptionInfo>
  <Request>
    <siri:SubscriptionRef>1</siri:SubscriptionRef>
    <siri:SubscriptionRef>2</siri:SubscriptionRef>
  </Request>
  <RequestExtension/>
</wsdl:DeleteSubscription>
```

Sample 2:

```
<wsdl:DeleteSubscription xmlns:wsdl="http://wsdl.siri.org.uk"
xmlns:siri="http://www.siri.org.uk/siri" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
```

```
instance" xsi:schemaLocation="http://wsdl.siri.org.uk file:///C:/Siri/SiriXml-
v2.0h/xsd/wsdl_model/siri_wsProducer-Framework.xsd">
  <DeleteSubscriptionInfo>
    <siri:RequestTimestamp>2012-10-03T09:49:04.838471+02:00</siri:RequestTimestamp>
    <siri:RequestorRef>XYZ_CONSUMER</siri:RequestorRef>
  </DeleteSubscriptionInfo>
  <Request>
    <siri:All/>
  </Request>
  <RequestExtension/>
</wsdl:DeleteSubscription>
```

7.3 DeleteSubscriptionResponse

The producer will send a DeleteSubscriptionResponse with an acknowledgment or error code for each subscription that was to be terminated.

Attributes		**Description**
DeleteSubscriptionAnswerInfo	1:1	
- ResponseTimestamp	1:1	Creation time of response.
- ResponderRef	1:1	Identifies the Producer.
Answer	1:1	
- TerminationResponseStatus	1:*	Status of each response to each subscription termination. See below section.
AnswerExtension	1:1	Should be empty.

7.4 TerminateResponseStatus

Attributes		Description
ResponseTimestamp	0:1	Creation time of response status
SubscriberRef	0:1	Pre-determined Participant Reference of the subscribing consumer.
SubscriptionRef	1:1	This is a reference to the SubscriptionIdentifier of the subscription in question.
Status	0:1	Whether the subscription could be cancelled. Default is true.
ErrorCondition	0:1	Error Condition that applies to a TerminateSubscriptionResponse.

If an ErrorCondition occurs then an ErrorCondition element should be included containing one of the four valid error elements according to the SIRI standard and also a Description if applicable.

7.5 Sample DeleteSubscriptionResponse

```
<wsdl:DeleteSubscriptionResponse xmlns:wsdl="http://wsdl.siri.org.uk"
xmlns:siri="http://www.siri.org.uk/siri" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xsi:schemaLocation="http://wsdl.siri.org.uk file:///C:/Siri/SiriXml-
v2.0h/xsd/wsdl_model/siri_wsProducer-Framework.xsd">
  <DeleteSubscriptionAnswerInfo>
    <siri:ResponseTimestamp>2012-10-03T09:49:04.838471+02:00</siri:ResponseTimestamp>
    <siri:ResponderRef>PubTransETProducer</siri:ResponderRef>
  </DeleteSubscriptionAnswerInfo>
  <Answer>
    <siri:ResponseTimestamp>2012-10-03T09:49:04.838471+02:00</siri:ResponseTimestamp>
    <siri:TerminationResponseStatus>
      <siri:SubscriberRef>XYZ_CONSUMER</siri:SubscriberRef>
      <siri:SubscriptionRef>1</siri:SubscriptionRef>
      <siri:Status>true</siri:Status>
    </siri:TerminationResponseStatus>
    <siri:TerminationResponseStatus>
      <siri:SubscriberRef>XYZ_CONSUMER</siri:SubscriberRef>
      <siri:SubscriptionRef>1</siri:SubscriptionRef>
      <siri:Status>false</siri:Status>
      <siri:ErrorCondition>
        <siri:UnknownSubscriptionError/>
      </siri:ErrorCondition>
    </siri:TerminationResponseStatus>
  </Answer>
  <AnswerExtension/>
</wsdl:DeleteSubscriptionResponse>
```

8 Estimated Timetable messages

This section describes the content of the service deliveries sent from the producer to the consumer.

8.1 NotifyEstimatedTimetable

Attributes		**Description**
ServiceDeliveryInfo	1:1	
- ResponseTimestamp	1:1	Time individual response element was created.
- ProducerRef	0:1	Participant reference that identifies producer of data.
Notification	1:1	
- EstimatedTimetableDelivery	1:*	See separate section below
SiriExtensions	1:1	Should be empty.

8.2 EstimatedTimetableDelivery

An EstimatedTimetableDelivery is made up of EstimatedJourneyVersionFrame instances, each representing a list of estimated vehicle journeys and possibly also connection parameters for service journey interchanges between feeder and distributor journeys.

Attributes		**Description**
ResponseTimestamp	1:1	Time individual response element was created.
SubscriberRef	1:1	Required if Delivery is for a Subscription, Participant Reference of Subscriber.
SubscriptionRef	1:1	Identifier of Subscription issued by Requestor. Unique within Subscriber (i.e. within ParticipantRef of Subscriber), and SIRI Functional Service type.
EstimatedJourneyVersionFrame	1:1	Grouping all Estimated Vehicle Journeys

8.3 EstimatedJourneyVersionFrame

Attributes		Description
RecordedAtTime	1:1	Time at which data was recorded.
EstimatedVehicleJourney	1:*	A VEHICLE JOURNEY taking place on a particular date. See separate section below.
EstimatedServiceJourneyInterchange	0:*	Connection parameters for a monitored SERVICE JOURNEY INTERCHANGE between a feeder and a distributor journey. See separate section below.

8.4 EstimatedVehicleJourney

The EstimatedJourneyVersionFrame has one or several EstimatedVehicleJourney elements, which represent a vehicle journey taking place on a particular date.

(Note that table below is split on two pages)

Attributes		Description
LineRef	1:1	Reference to a LINE.
DirectionRef	1:1	Reference to a LINE DIRECTION, typically outward or return.
DatedVehicleJourneyRef	1:1	Reference to the DATED VEHICLE JOURNEY.
ExtraJourney*	0:1	Whether this VEHICLE JOURNEY is in addition to the long term planned data. Default is 'false': i.e. not an extra DATED VEHICLE JOURNEY.
Cancellation*	0:1	Whether this is a cancellation of a journey. Default is 'false': this VEHICLE JOURNEY has not been cancelled.
VehicleMode	0:1	A method of transportation such as bus, metro etc.
PublishedLineName	0:*	Name or Number by which the LINE is known to the public. (One per language)
DirectionName	0:*	Description of the DIRECTION.

<JourneyEndNames>	0:1	See separate section.
OperatorRef	0:1	OPERATOR of a VEHICLE JOURNEY.
ProductCategoryRef	0:1	PRODUCT CATEGORY of journey – classifies, for example; express, local.
ServiceFeatureRef	0:*	Aimed feature of VEHICLE JOURNEY. E.g. 'lowFloor'
VehicleFeatureRef	0:*	Feature of monitored VEHICLE. E.g. 'lowFloor'.
SituationRef	0:*	Reference to SITUATION describing the cause and effect of an incident or event associated with the VehicleJourney. Information describing the referred SITUATION must be subscribed from the PubTrans Situation Exchange producer service.
Monitored	0:1	Whether there is real-time information available for journey, if not present, not known.
PredictionInaccurate	0:1	Whether the prediction for the journey is considered to be of a useful accuracy or not. Default is 'false'.
BlockRef	0:1	BLOCK that VEHICLE is running. Only provided to certain consumers according to configuration. If so configured the following applies: • Provided if the vehicle is signed-on to a block. • This element is omitted if the block is signed-off. • Element is always included in incremental updates if the vehicle is signed-on to a block.
VehicleRef	0:1	Unique reference to the specific VEHICLE. Only provided to certain consumers according to configuration. If so configured the following applies: Element is always included in incremental updates.
EstimatedCalls	0:1	
- EstimatedCall	1:*	Ordered sequence of SCHEDULED STOP POINTs called at by the VEHICLE JOURNEY If IsCompleteStopSequence is false, may be just those stops that are altered. See separate section below.
IsCompleteStopSequence	0:1	Whether the above call sequence is complete, i.e. represents every CALL of the SERVICE PATTERN and so can be used to replace a previous call sequence. Default is 'false'.

* There is a choice between these (zero or one of these may be included in the EstimatedVehicleJourney)

8.5 JourneyEndNames

Attributes		**Description**
OriginRef	0:1	Reference to the origin SCHEDULED STOP POINT of the journey.
OriginName	0:*	Name of the origin of the journey; used to help identify the VEHICLE JOURNEY on arrival boards. (One per language)
OriginShortName	0:*	Short name of the origin of the journey. (One per language)
DestinationDisplayAtOrigin	0:*	The name of the destination of the journey shown at the origin. (One per language)
Via	0:*	Description of a VIA point on a journey.
- PlaceName	0:*	The name of a VIA point of the journey. (One per language)
- PlaceShortName	0:*	Short name of a VIA point of the journey. (One per language)
DestinationName	0:*	The name of the destination of the journey; used to help identify the VEHICLE to the public. (One per language)
DestinationShortName	0:*	The short name of the destination of the journey; used to help identify the VEHICLE to the public. (One per language)

8.6 EstimatedCall

(Note that table below is split on two pages)

Attributes		**Description**
StopPointRef	1:1	Reference to the SCHEDULED STOP POINT.
VisitNumber	0:1	For JOURNEY PATTERNs that involve repeated visits by a VEHICLE to the same stop, the VisitNumber is used to distinguish each separate visit.
Order	0:1	Overall Order within JOURNEY PATTERN.
StopPointName	0:*	Name of SCHEDULED STOP POINT. Usually inherited from the name of the STOP AREA. (One per language)
Cancellation	0:1	Whether this call is cancelled or not. Default is false.
TimingPoint	0:1	Whether the stop is a TIMING POINT, i.e. times are measured at it.
RequestStop	0:1	Whether Vehicle stops only if requested explicitly by passenger. Default is 'false'.
DestinationDisplay	0:*	The name of the destination of the journey; used to help identify the VEHICLE to the public. Since VEHICLEs can change their destination during a journey, the destination included here should be what the VEHICLE will display when it reaches this stop.
SituationRef	0:*	Reference to SITUATION describing the cause and effect of an incident or event associated with the MonitoredCall. Information describing the referred SITUATION must be subscribed from the PubTrans Situation Exchange producer service.
AimedArrivalTime	0:1	Planned arrival time of VEHICLE at stop according to original timetable.
ExpectedArrivalTime	0:1	Estimated time of arrival of VEHICLE at stop.
<MonitoredStopArrivalStatus>	0:1	See separate section below.
AimedDepartureTime	0:1	Planned departure time of VEHICLE from stop according to original timetable.

ExpectedDepartureTime	0:1	Estimated time of departure of VEHICLE, most likely taking into account all control actions such as waiting.
EarliestExpectedDepartureTime	0:1	Earliest time at which VEHICLE may leave the stop. Used to secure connections. Used for passenger announcements. Passengers must be at boarding point by this time to be sure of catching VEHICLE. i.e. "Vehicle will not leave before this time" - may be revised from original aimed time
<MonitoredStopDepartureStatus>	0:1	Elements describing the departure status of a VEHICLE from a stop. See separate section below.

8.7 MonitoredStopArrivalStatus

Attributes		**Description**
ArrivalStatus	0:1	Classification of the timeliness of the visit according to a fixed list of values. If not specified, same as DepartureStatus.
ArrivalPlatformName	0:1	Textual description (such as “A” or “1”) of platform/bay where passengers can alight. Reflects current information of expected QUAY. Only included if different from DeparturePlatformName.
ArrivalBoardingActivity	0:1	Type of alighting activity allowed at stop. Default is ‘alighting’. alighting |noAlighting | passthru.
ArrivalStopAssignment	0:1	Assignment of arrival of Scheduled STOP POINT to a phsyical QUAY (platform). If not given, assume same as for departure
- AimedQuayRef	0:1	Physical QUAY to use according to the planned timetable. Not included if identical to StopPointRef.
- AimedQuayName	0:*	Scheduled Platform name. Only included if different from ArrivalPlatformName.
- ExpectedQuayRef	0:1	Physical QUAY to use according to the real-time prediction
- ActualQuayRef	0:1	Physical QUAY actually used.

8.8 MonitoredStopDepartureStatus

Attributes		**Description**
DepartureStatus	0:1	Classification of the timeliness of the departure part of the call, according to a fixed list of values. This may reflect a presentation policy, for example calls less than one minute behind target time are still classified as on-time. Applications may use this to guide their own presentation of times.
DeparturePlatformName	0:1	Textual description (such as “A” or “1”) of platform/bay where passengers can board. Reflects current information of expected QUAY.
DepartureBoardingActivity	0:1	Type of boarding activity allowed at stop. Default is ‘boarding’. boarding | noBoarding | passthru.
DepartureStopAssignment	0:1	Assignments of departure platfiorm for Scheduled STOP POINT to a physical QUAY
- AimedQuayRef	0:1	Physical QUAY to use according to the planned timetable.
- AimedQuayName	0:*	Scheduled Platform name. Only included if different from DeparturePlatformName.
- ExpectedQuayRef	0:1	Physical QUAY to use according to the real-time prediction.
- ActualQuayRef	0:1	Physical QUAY actually used.

8.9 EstimatedServiceJourneyInterchange

Attributes		Description
FeederJourneyRef	1:1	Reference to a connecting distributor VEHICLE JOURNEY. See ConnectingJourneyRefStructure below for content.
DistributorJourneyRef	1:1	Reference to a connecting distributor VEHICLE JOURNEY. See ConnectingJourneyRefStructure below for content.
WillNotWait*	1:1	Distributor not required to wait (i.e. connection broken)
WillWait*	1:1	Distributor required to wait (a certain duration).
- WaitUntilTime	1:1	Time up until which the distributor will wait.
ExpectedDepartureTimeOfDistributor	0:1	Time at which distributor VEHICLE is expected to depart

* Either WillNotWait or WillWait, but not both, has to be supplied.

8.10 ConnectingJourneyRefStructure

Attributes		Description
FramedVehicleJourneyRef	0:1	A reference to the DATE VEHICLE JOURNEY that the VEHICLE is making, unique with the data horizon of the service.
- DataFrameRef	1:1	Unique identifier of data frame within participant service. Used to ensure that the DatedVehicleJourneyRef is unique with the data horizon of the producer.
- DatedVehicleJourneyRef	1:1	A reference to the DATED VEHICLE JOURNEY.
LineRef	0:1	LINE reference.

8.11 Sample NotifyEstimatedTimetable

```
<wsdl:NotifyEstimatedTimetable xmlns:wsdl="http://wsdl.siri.org.uk"
xmlns:siri="http://www.siri.org.uk/siri" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xsi:schemaLocation="http://wsdl.siri.org.uk file:///C:/Siri/SiriXml-
v2.0h/xsd/wsdl_model/siri_wsConsumer-Services.xsd">
<ServiceDeliveryInfo>
    <siri:ResponseTimestamp>2012-08-16T14:11:24+02:00</siri:ResponseTimestamp>
    <siri:ProducerRef>PubTransETProducer</siri:ProducerRef>
  </ServiceDeliveryInfo>
  <Notification>
    <siri:EstimatedTimetableDelivery>
      <siri:ResponseTimestamp>2012-08-16T14:11:24+02:00</siri:ResponseTimestamp>
```

```
      <siri:SubscriberRef>XYZ_CONSUMER</siri:SubscriberRef>
      <siri:SubscriptionRef>S1</siri:SubscriptionRef>
      <siri:EstimatedJourneyVersionFrame>
        <siri:RecordedAtTime>2012-08-16T14:11:24+02:00</siri:RecordedAtTime>
        <siri:EstimatedVehicleJourney>
          <siri:LineRef>9011001000100000</siri:LineRef>
          <siri:DirectionRef>9014001000110000</siri:DirectionRef>
          <siri:DatedVehicleJourneyRef>9015001000100001</siri:DatedVehicleJourneyRef>
          <siri:VehicleMode>bus</siri:VehicleMode>
          <siri:PublishedLineName xml:lang="sv">Grön Express</siri:PublishedLineName>
          <siri:DirectionName xml:lang="sv">Mölnlycke</siri:DirectionName>
          <siri:OriginRef>9025001000000001</siri:OriginRef>
          <siri:OriginName xml:lang="sv">Ytterby Station</siri:OriginName>
          <siri:OriginShortName xml:lang="sv">Ytterby stn</siri:OriginShortName>
          <siri:DestinationDisplayAtOrigin
xml:lang="sv">Mölnlycke</siri:DestinationDisplayAtOrigin>
          <siri:Via>
            <siri:PlaceName xml:lang="sv">Göteborg</siri:PlaceName>
            <siri:PlaceShortName xml:lang="sv">Gbg</siri:PlaceShortName>
          </siri:Via>
          <siri:DestinationName xml:lang="sv">Mölnlycke</siri:DestinationName>
          <siri:OperatorRef>9013001000100000</siri:OperatorRef>
          <siri:ProductCategoryRef>EXPRESSBUS</siri:ProductCategoryRef>
          <siri:ServiceFeatureRef>lowFloor</siri:ServiceFeatureRef>
          <siri:ServiceFeatureRef>suitableForWheelChairs</siri:ServiceFeatureRef>
          <siri:VehicleFeatureRef>lowFloor</siri:VehicleFeatureRef>
          <siri:Monitored>true</siri:Monitored>
          <siri:BlockRef>9041001000100001</siri:BlockRef>
          <siri:VehicleRef>9031001000100001</siri:VehicleRef>
          <siri:EstimatedCalls>
            <siri:EstimatedCall>
              <siri:StopPointRef>9025001000000001</siri:StopPointRef>
              <siri:Order>1</siri:Order>
              <siri:StopPointName xml:lang="sv">Ytterby Station</siri:StopPointName>
              <siri:DestinationDisplay xml:lang="sv">Mölnlycke</siri:DestinationDisplay>
              <siri:AimedArrivalTime>2012-08-16T14:10:00+02:00</siri:AimedArrivalTime>
              <siri:ExpectedArrivalTime>2012-08-
16T14:11:00+02:00</siri:ExpectedArrivalTime>
              <siri:ArrivalStatus>arrived</siri:ArrivalStatus>
              <siri:ArrivalPlatformName>C</siri:ArrivalPlatformName>
              <siri:AimedDepartureTime>2012-08-
16T14:15:00+02:00</siri:AimedDepartureTime>
              <siri:ExpectedDepartureTime>2012-08-
16T14:15:00+02:00</siri:ExpectedDepartureTime>
              <siri:EarliestExpectedDepartureTime>2012-08-
16T14:14:00+02:00</siri:EarliestExpectedDepartureTime>
              <siri:DepartureStatus>onTime</siri:DepartureStatus>
              <siri:DeparturePlatformName>C</siri:DeparturePlatformName>
            </siri:EstimatedCall>
          </siri:EstimatedCalls>
        </siri:EstimatedVehicleJourney>
        <siri:EstimatedServiceJourneyInterchange>
          <siri:FeederJourneyRef>
            <siri:FramedVehicleJourneyRef>
              <siri:DataFrameRef>2012-08-16</siri:DataFrameRef>
              <siri:DatedVehicleJourneyRef>9015001000100001</siri:DatedVehicleJourneyRef>
            </siri:FramedVehicleJourneyRef>
            <siri:LineRef>9011001000100000</siri:LineRef>
          </siri:FeederJourneyRef>
          <siri:DistributorJourneyRef>
            <siri:FramedVehicleJourneyRef>
```

```
            <siri:DataFrameRef>2012-08-16</siri:DataFrameRef>
            <siri:DatedVehicleJourneyRef>9015001000200001</siri:DatedVehicleJourneyRef>
          </siri:FramedVehicleJourneyRef>
          <siri:LineRef>9011001000200000</siri:LineRef>
        </siri:DistributorJourneyRef>
        <siri:WillWait>
          <siri:WaitUntilTime>2012-08-16T14:20:00+02:00</siri:WaitUntilTime>
        </siri:WillWait>
        <siri:ExpectedDepartureTimeOfDistributor>2012-08-
16T14:22:00+02:00</siri:ExpectedDepartureTimeOfDistributor>
      </siri:EstimatedServiceJourneyInterchange>
    </siri:EstimatedJourneyVersionFrame>
  </siri:EstimatedTimetableDelivery>
 </Notification>
 <SiriExtension />
</wsdl:NotifyEstimatedTimetable>
```

8.12 GetEstimatedTimetable

GetEstimatedTimetable is a synchronous (request/reply) way of fetching estimated timetables.

Attributes		**Description**
ServiceRequestInfo	1:1	
- RequestTimestamp	1:1	Timestamp of the request.
- RequestorRef	1:1	Pre-determined Participant Reference for the consumer.
Request	1:1	
- RequestTimestamp	1:1	Timestamp of the request.
- PreviewInterval	0:1	Forward duration for which journeys should be included. For subscriptions, this duration is a continuously rolling window from the present time. For immediate requests, this duration is measured from the time of the request.
- Lines	0:1	Filter the results to include only VEHICLEs along the given LINEs.
o LineDirection	1:*	Include only vehicles along the given LINE.
▪ LineRef	1:1	Line Reference.
▪ DirectionRef	0:1	Direction Reference. Allowed values are 1 or 2.
RequestExtension	1:1	Should be empty

8.13 Sample GetEstimatedTimetable

```
<wsdl:GetEstimatedTimetable xmlns:wsdl="http://wsdl.siri.org.uk"
xmlns:siri="http://www.siri.org.uk/siri" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xsi:schemaLocation="http://wsdl.siri.org.uk file:///C:/Siri/SiriXml-
v2.0h/xsd/wsdl_model/siri_wsProducer-Services.xsd">
  <ServiceRequestInfo>
    <siri:RequestTimestamp>2012-08-16T14:11:24+02:00</siri:RequestTimestamp>
    <siri:RequestorRef>XYZ_CONSUMER</siri:RequestorRef>
  </ServiceRequestInfo>
  <Request>
    <siri:RequestTimestamp>2012-08-16T14:11:24+02:00</siri:RequestTimestamp>
    <siri:Lines>
      <siri:LineDirection>
        <siri:LineRef>9011001000100000</siri:LineRef>
      </siri:LineDirection>
    </siri:Lines>
  </Request>
  <RequestExtension/>
</wsdl:GetEstimatedTimetable>
```

8.14 GetEstimatedTimetableResponse

Attributes		**Description**
ServiceDeliveryInfo	1:1	
- ResponseTimestamp	1:1	Time individual response element was created.
- ProducerRef	0:1	Pre-determined participant reference of the producer.
Answer	1:1	
- EstimatedTimetableDelivery	1:*	See section above

8.15 Sample GetEstimatedTimetableResponse

```
<wsdl:GetEstimatedTimetableResponse xmlns:wsdl="http://wsdl.siri.org.uk"
xmlns:siri="http://www.siri.org.uk/siri" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xsi:schemaLocation="http://wsdl.siri.org.uk file:///C://Siri/SiriXml-
v2.0h/xsd/wsdl_model/siri_wsProducer-Services.xsd">
  <ServiceDeliveryInfo>
    <siri:ResponseTimestamp>2012-08-16T14:11:24+02:00</siri:ResponseTimestamp>
    <siri:ProducerRef>PubTransETProducer</siri:ProducerRef>
  </ServiceDeliveryInfo>
  <Answer>
    <siri:EstimatedTimetableDelivery version="2.0">
      <!--For content sample, see example in the NotifyEstimatedTimetable-->
    </siri:StopMonitoringDelivery>
  </Answer>
  <AnswerExtension/>
</wsdl:GetEstimatedTimetableResponse>
```

9 References

Document	Description
CEN EN 12896, Transmodel (version 5.1).	CEN EN 12896, Transmodel (version 5.1). The Reference Data Model for Public Transport.
CEN TS 15531 Service Interface for Real time Information (SIRI) (draft)	CEN TS 15531 Service Interface for Real time Information (SIRI) (2.0 final draft) http://www.vdv.de/siri.aspx