CONSAT
Telematics

ITS4mobility SIRI-SX

Service Interface for Real Time Information Situation Exchange (SX)

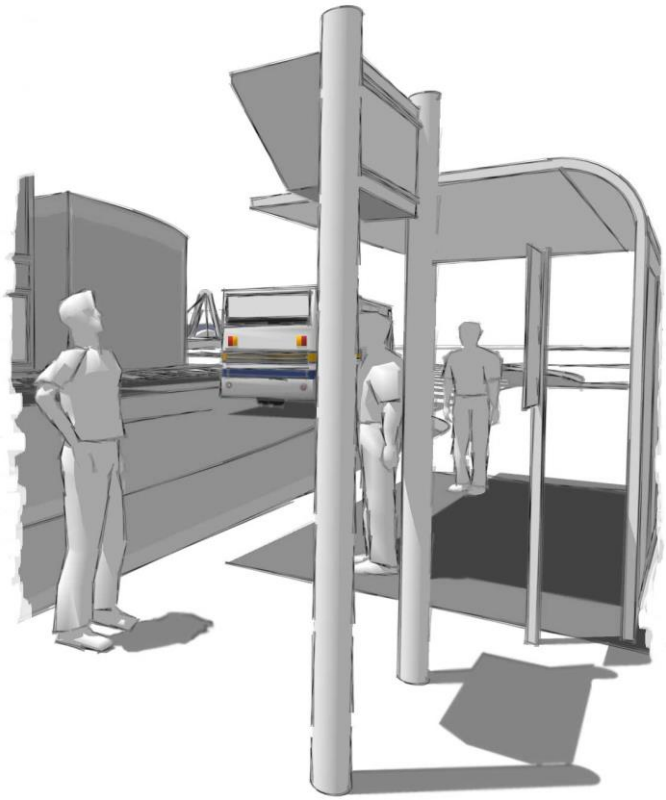

Table of contents

Terms, Acronyms and Abbreviations

Abbreviation	Description
SIRI	Service Interface for Real Time Information, CEN/TS 15531.
Transmodel	An abstract general purpose model for public transport information (CEN TC278, Reference Data Model For Public Transport, ENV12896 revised, June 2001).
I4M	ITS4Mobility
HTTP	Hypertext Transfer Protocol.
Service	The program (process) that implements one or more of the SIRI functions.
Subscriber	A client that receives data from a Service using HTTP.
Client	A subscriber that receives data from a Service using HTTP.
Server	A computer that hosts one or more Services.
SX	Situation Exchange, a SIRI functional service interface.

1. Introduction

This document contains a description of the ITS4mobility SIRI Situation Exchange (SX) implementation. The SIRI/SX implementation is an open API that provides access to data from the ITS4mobility system.

The primary intended use of the ITS4mobility SIRI/SX implementation is for integration with external systems (machine-to-machine).

2. Scope and Purpose

SIRI as a standard has a large number of features and several optional capabilities. This document is intended to give developers the information needed to use the SIRI/SX functional service supplied with ITS4mobility. The capabilities and features of the ITS4mobility implementation are specified in detail.

3. SIRI/SX and the ITS4mobility System

The SIRI protocols deliver information from the ITS4mobility system in near real time. The ITS4mobility system is a low latency asynchronous message based system. This means that the time it takes for information generated within the system to pass all the way to a SIRI client is as small as possible. For example, when an operator enters a new information message, the message is published on all external interfaces including SIRI/SX within a second or so.

The SIRI/SX module is used to transfer *traffic change* and *traffic information*.

One or more *Traffic Changes* and/or one or more *Traffic Informations* can be bundled together into a single *Traffic Task*.

3.1. Traffic Change

A *traffic change* is when part or all of the planned traffic is cancelled. This is done by an operator using one of the user interfaces of the system. The operator can chose what to cancel in a number of ways, for example:

1) Selecting one or more blocks.
2) Selecting one or more journeys.
3) Selecting one or more lines.
4) Selecting one or more stop points.

As soon as the traffic change has been entered into the system, the information will be sent to SIRI/SX clients without delay. In SIRI/SX the *Progress* element decides whether the traffic change is added (open) or revoked (closed).

3.2. Traffic Information

Normally an operator will enter textual information aimed at commuters in connection with a *traffic change*. At other times an operator may wish to make other information available to passengers.

This information can be entered into the system using the ITS4mobility user interface. The operator can chose to attach the textual information to a number of elements of the planned traffic, for example:

1) Selecting one or more blocks.
2) Selecting one or more journeys.
3) Selecting one or more lines.
4) Selecting one or more stop points.

Depending on the URI parameters, these conditions might be translated into stop points. For example, attaching a text to a block would then mean that the text is attached to every stop point within that block.

As soon as the traffic information has been entered into the system it is published to all SIRI/SX clients without delay. The *Progress* element is set to “open”. If the information is revoked, the same SIRI/SX document will be sent again but with the *Progress* element set to “closed”.

3.2.1. ITS4mobility Information Channels

The traffic operator can decide that the textual information should be published to one or more Information Channels. The names and definition of the channels may vary depending on the system configuration. The following is an example list of *possible* channels:

Channel Name	**Description**
PublicWeb	A public web site for commuters.
PublicJourneyPlanner	A public journey planner.
PublicDisplays	All public information displays (at stop or web based).
BusDriver	Shown to the vehicle driver only.
BusPassengers	Shown to commuters on vehicles using internal displays.
BusExterior	Shown on exterior displays on the vehicles.
Email	A channel for email subscribers.

A SIRI/SX client can filter for a specific set of channels using URI query parameters as described in section 3.5.

3.3. Audio Information (Optional)

ITS4mobility can provide audio information using SIRI/SX. This is an extension to the SIRI protocol and has to be configured separately on the server. This option is disabled by default.

For more information on this option please contact Consat Telematics AB.

3.4. Single Document or Multi Document Mode

In previous versions of the SIRI/SX server, situations referring to *Traffic Information* and *Traffic Change* were not bundled in *Traffic Tasks*. They were sent in separate *Situation* elements, each in a separate XML document embedded in a *SituationExchangeDelivery*. To remain backwards compatible, this is still the default behavior unless specifically disabled using the *singleDocMode* query parameter.

If *singleDocMode* is set to **true**, all content of a single *Traffic Task* will be sent in a single XML document as multiple *Situation* elements within a single *SituationExchangeDelivery* element.

3.5. Service URIs and Parameters

If no change is made during installation, SIRI/SX is available at the following URI:

http://<hostname>/siri/1.4/sx

The following query parameters are available and will affect the behavior of the server:

Parameter	**Description**
channels	A comma separated list of information channels. The client will only receive data that is published for the supplied channels.
singleDocMode	If set to “false”, multi document mode is enabled and content in a *Traffic Task* is sent in separate XML documents. If set to “true” the server will bundle content from a *Traffic Task* as separate *Situation* elements in a single *SituationExchangeDelivery* element. The bundled *Situation* elements reference each other using a *References* element containing one or more *RelatedToRef* elements.
flattenToStopPoints	If set to “true”, the scope for a *Traffic Information* is translated into stop points. The default server value is configurable.
convertLinesToJourneys	If set to “true”, any line references in the scope for a *Traffic Information* task is translated into journey references. The default server value is “false”.
enableTemporalsExtension	If set to “true”, the extension which allows for temporal expressions is activated. The server default value is set at installation in the server variable *EnableTemporalsExtensionDefault*.

For example, a client that filters for the journey planner channel and wants the new behavior with bundled situations would use the following URI:

http://<hostname>/siri/1.4/sx?channels=PublicJourneyPlanner&singleDocMode=true

An example SX document can be found the appendix.

4. SIRI Situation Exchange (SX)

4.1. SituationExchangeSubscriptionRequest

These are the elements of the *SituationExchangeSubscriptionRequest* that are used in the ITS4mobility implementation. Please refer to the appendix for an example document.

Element	**Description**
SubscriberRef	A client reference, which can be any string. Will be returned in the *SituationExchangeDelivery*.
SubscriptionIdentifier	An identifier that will be returned as *SubscriptionRef* in the *SituationExchangeDelivery*.
InitialTerminationTime	How long this subscription will last before it is terminated by the server. For continuous operation this value should be far away.
SituationExchangeSubscriptionRequest	See below.

The *SituationExchangeSubscriptionRequest* element contains the following elements.

Element	**Description**
RequestTimestamp	The date and time that the client posted this request. The value is not used by the server.
PreviewInterval	How far ahead data will be delivered. The recommended setting is 1 year (P1Y) which in practice means to receive all data.

4.2. SituationExchangeDelivery

These are the elements of the *SituationExchangeDelivery* that are used in the ITS4mobility implementation. Please refer to the appendix for an example document.

Element	Description
ResponseTimestamp	The date and time that the server sent this document.
SubscriberRef	The subscriber (client) reference.
SubscriptionRef	The subscription reference which is the *SubscriptionIdentifier* that the client supplied in the *SituationExchangeSubscriptionRequest*.
Situations	A list of one or more *PtSituationElement*. See below.

The *PtSituationElement* element contains the following elements.

Element	Description
CreationTime	The date and time the situation was created.
CountryRef	Country code. Will always be the same (*se*, *no*, *br* etc).
ParticipantRef	The string ITS4mobility. Will always be the same.
SituationNumber	A unique number identifying the situation.
References	See below. Only present when *multiDocMode* is set to “false”.
Source	See below.
Progress	*open* or *closed*. When the progress is set to *open*, the situation is added. When the progress is set to *closed*, the situation is removed.
ValidityPeriod	The period that the situation is valid.
UndefinedReason	Not used. Contains a timestamp and should be ignored.
Severity	Set to *slight*, *normal* or *severe* which maps to “low”, “normal” and “high” in the ITS4mobility IMFace application.
Audience	Currently always set to *public*.
ReportType	Currently always set to *unknown*.
Description	Text information describing the situation. Used to display information to passengers etc.
Affects	See below.
Consequences	A list of *Consequence* elements. See below.

The *References* element is delivered when *multiDocMode* is set to “false” and contains the following elements.

Element	Description
RelatedToRef	Reference to a related *Situation* that is available in the current *SituationExchangeDelivery*.
RelatedToRef. CreationTime	Creation time of the related *Situation*.
RelatedToRef. SituationNumber	The *SituationNumber* of the related *Situation*.
RelatedToRef. RelatedAs	The type of relation. Always set to *associated*.

The *Affects* element contains the following elements.

Element	Description
StopPoints	A list of stop points that the situation is valid for.
VehicleJourneys	Not used in *multiDocMode*. Contains a list of affected vehicle journeys in single document mode (if available).
Networks	Not used in *multiDocMode*. Contains affected line(s) in single document mode (if available).

The *Consequence* element contains the following elements.

Element	Description
Condition	Always set to *unknown*.
Severity	Set to *slight*, *normal* or *severe* which maps to “low”, “normal” and “high” in the ITS4mobility IMFace application.

4.2.1. SituationExchangeDelivery - Extensions

Audio Extension

If the SIRI/SX server is configured to allow audio messages, the *PtSituationElement* element uses the *Extension* element to deliver the necessary information. The SIRI/SX document does not contain the actual audio content. Instead an id (ResourceId) is delivered which can then be used to retrieve the actual audio message from the ITS4mobility system using HTTP.

An example of the audio extension element is shown below:

```
<AA:Extensions>
    <ITS4mobility xmlns="http://tmix.se/siri">
        <Audio>
            <ResourceId>AW84</ResourceId>
            <NumberOfRepetitions>10</NumberOfRepetitions>
            <IntervalBetweenRepetitions>600</IntervalBetweenRepetitions>
        </Audio>
    </ITS4mobility>
</AA:Extensions>
```

The *Extensions* element may contain the following elements.

Element	Description
ITS4mobility	Container element for ITS4mobility specific data.
Audio	Container element for audio specific data.
ResourceId	The id of the audio resource. This id can be used to retrieve the audio file from the ITS4mobility system.
NumberOfRepetitions	*This element is optional.* The number of times that the audio message should be announced. If the value is 0, the message should never be announced automatically.

	If NumberOfRepetitions is missing, the audio message should be repeated until the ValidityPeriod has been reached.
IntervalBetweenRepetitions	*This element is optional.* The time in seconds to wait between each audio announcement. Note that this is the time between the stop of an announcement until the beginning of the next.

Note that if the *NumberOfRepetitions* value is 0, the audio message should never be announced automatically. This means the message should only be announced on demand, for example when the user pushes a button at the stop.

The *ValidityPeriod* always has precedence. An audio message should never be announced outside of the *ValidityPeriod* boundaries.

Heading Extension

If the SIRI/SX server is configured to use description headings , the *PtSituationElement* element uses the *Extension* element to deliver the necessary information.

An example of the heading extension element is shown below:

```
<AA:Extensions>
    <ITS4mobility xmlns="http://tmix.se/siri">
        <Heading>
           <Text>This is the heading</Text>
        </Heading>
    </ITS4mobility>
</AA:Extensions>
```

The *Extensions* element may contain the following elements.

Element	**Description**
ITS4mobility	Container element for ITS4mobility specific data.
Heading	Container element for heading specific data.
Text	The text content for the heading.
Language	*This element is optional.* Language code as defined by RFC 1766

Temporals Extension

If the SIRI/SX server is configured to use temporal scopes, the *PtSituationElement* element uses the *Extension* element to deliver the necessary information. This is enabled using the query parameter *enableTemporalsExtension* or if the server variable *EnableTemporalsExtensionDefault* is set to *true* in which case all clients will receive the temporal extension.

An example of the Temporals extension element is shown below:

```
<AA:Extensions>
       <ITS4mobility xmlns="http://tmix.se/siri">
         <Temporals>
           <Temporal>
             <Days>
               <Day>monday</Day>
               <Day>wednesday</Day>
               <Day>friday</Day>
             </Days>
             <Interval>
               <From>00:08:00</From>
               <To>09:00:00</To>
             </Interval>
           </Temporal>
           <Temporal>
             <Days>
               <Day>tuesday</Day>
               <Day>thursday</Day>
             </Days>
             <Interval>
               <From>00:09:00</From>
               <To>10:00:00</To>
             </Interval>
           </Temporal>
         </Temporals>
       </ITS4mobility>
</AA:Extensions>
```

The *Extensions* element may contain the following elements.

Element	**Description**
ITS4mobility	Container element for ITS4mobility specific data.
Temporals	Container element for a list of temporal specific data.
Temporal	Container element for a single temporal scope.

The *Temporal* container element may contain the following elements.

Element	**Description**
Days	Container element for a list of Day elements, see below.
Interval	The time interval for this temporal temporal, see below.

The *Days* container element may contain the following element.

Element	Description
Day	A *DayTypeEnumeration*, see the schema for definition.

The *Interval* element may contain the following.

Element	Description
From	Valid *from* time in a *hh:mm* format (xsd:time).
To	Valid *to* time in a *hh:mm* format (xsd:time).

5. References

CEN/TS 15531-1:2007 Service interface for real-time information relating to public transport operations: Context and framework.

CEN/TS 15531-2:2007 Service interface for real-time information relating to public transport operations: Communications infrastructure.

CEN/TS 15531-3:2007 Service interface for real-time information relating to public transport operations: Functional service interfaces.

CEN/TS 15531-4:2011 Service interface for real-time information relating to public transport operations: Functional service interfaces - Facility Monitoring

CEN/TS 15531-5:2011 Service interface for real-time information relating to public transport operations: Functional service interfaces - Situation Exchange

6. Document history

Revision	Date	Comment
P1A	2013-05-23	Initial draft.
P1B	2013-09-16	Added extension schema and updated 5.2.1 with more explanations on the usage of the audio extension data.
1	2014-02-14	Version 1.
2	2016-04-11	Updated for a new version of the server that allows filtering for I4M channels and complex *Situation* elements.
3	2017-04-07	Updated section 4.2.1 and extension schema for the *Heading* element.
4	2017-09-08	Updated for a new version of the server that allows 1) to flatten the selection to stop points or 2) to flatten lines to journeys. The query parameters singleDocMode and flattenToStopPoints have been introduced. multiDocMode has been deprecated.
5	2018-01-15	Updated for temporal extensions and documentation of new query parameters in section 3.5.

7. Appendix

7.1. Schema for extensions

```
<?xml version="1.0" encoding="utf-8" ?>
<xs:schema xmlns="http://tmix.se/siri" attributeFormDefault="unqualified" elementFormDefault="qualified"
targetNamespace="http://tmix.se/siri" xmlns:xs="http://www.w3.org/2001/XMLSchema">

  <xs:simpleType name="DayTypeEnumeration">
    <xs:annotation>
      <xs:documentation>Values for Day Type</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:NMTOKEN">
      <xs:enumeration value="monday"/>
      <xs:enumeration value="tuesday"/>
      <xs:enumeration value="wednesday"/>
      <xs:enumeration value="thursday"/>
      <xs:enumeration value="friday"/>
      <xs:enumeration value="saturday"/>
      <xs:enumeration value="sunday"/>
    </xs:restriction>
  </xs:simpleType>

  <xs:element name="ITS4mobility">
        <xs:complexType>
            <xs:sequence>
              <xs:element name="Heading" minOccurs="0">
                <xs:complexType>
                  <xs:sequence>
                    <xs:element name="Text" type="xs:string" minOccurs="1" />
                    <xs:element name="Language" type="xs:language" minOccurs="0" />
                  </xs:sequence>
                </xs:complexType>
              </xs:element>
              <xs:element name="Audio" minOccurs="0">
                    <xs:complexType>
                        <xs:sequence>
                            <xs:element name="ResourceId" type="xs:string" minOccurs="0" />
                            <xs:element name="NumberOfRepetitions" type="xs:unsignedInt" minOccurs="0" />
                            <xs:element name="IntervalBetweenRepetitions" type="xs:unsignedInt" minOccurs="0"
/>
                        </xs:sequence>
                    </xs:complexType>
              </xs:element>
              <xs:element name="Temporals" minOccurs="0">
                <xs:complexType>
                  <xs:sequence maxOccurs="unbounded">
                    <xs:element name="Temporal" minOccurs="0" maxOccurs="unbounded">
                      <xs:complexType>
                        <xs:sequence>
                          <xs:element name="Days" minOccurs="0" maxOccurs="1">
                            <xs:complexType>
                              <xs:sequence>
                                <xs:element name="Day" type="DayTypeEnumeration" maxOccurs="unbounded"/>
                              </xs:sequence>
                            </xs:complexType>
                          </xs:element>
                          <xs:element name="Interval" minOccurs="0" maxOccurs="1">
                            <xs:complexType>
                              <xs:sequence>
                                <xs:element name="From" type="xs:time" maxOccurs="1"/>
                                <xs:element name="To" type="xs:time" maxOccurs="1"/>
                              </xs:sequence>
                            </xs:complexType>
                          </xs:element>
                        </xs:sequence>
                      </xs:complexType>
```

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

7.2. Example SituationExchangeSubscriptionRequest

```
<?xml version="1.0"?>
<AE:Siri version="1.3" xmlns:xs="http://www.w3.org/2001/XMLSchema-instance"
xmlns:AD="http://www.ifopt.org.uk/acsb" xmlns:AB="http://www.ifopt.org.uk/ifopt"
xmlns:AC="http://datex2.eu/schema/1_0/1_0" xmlns:AE="http://www.siri.org.uk/siri">
    <AE:SubscriptionRequest>
        <AE:RequestTimestamp>2012-10-02T17:50:22.8845029+02:00</AE:RequestTimestamp>
        <AE:RequestorRef>VT_PublicMap</AE:RequestorRef>
        <AE:MessageIdentifier xs:type="AE:MessageQualifierStructure">1</AE:MessageIdentifier>

<AE:ConsumerAddress>http://10.42.18.244:21081/CustomerServices/IMFace/IMFace.aspx</AE:ConsumerAddres
s>
        <AE:SubscriptionContext>
            <AE:HeartbeatInterval>PT1M</AE:HeartbeatInterval>
        </AE:SubscriptionContext>
        <AE:SituationExchangeSubscriptionRequest
xs:type="AE:SituationExchangeSubscriptionStructure">
            <AE:SubscriberRef>VT_PublicMap</AE:SubscriberRef>
            <AE:SubscriptionIdentifier>VT_PublicMap</AE:SubscriptionIdentifier>
            <AE:InitialTerminationTime>9999-12-31T23:59:59.999</AE:InitialTerminationTime>
            <AE:SituationExchangeRequest version="1.3"
xs:type="AE:SituationExchangeRequestStructure">
                <AE:RequestTimestamp>2012-10-02T17:50:22.8845029+02:00</AE:RequestTimestamp>
                <AE:PreviewInterval>P1Y</AE:PreviewInterval>
            </AE:SituationExchangeRequest>
        </AE:SituationExchangeSubscriptionRequest>
    </AE:SubscriptionRequest>
</AE:Siri>
```

7.3. Example SituationExchangeDelivery

```
<?xml version="1.0"?>
<AA:Siri xmlns:AA="http://www.siri.org.uk/siri" xmlns:AC="http://datex2.eu/schema/1_0/1_0"
xmlns:AB="http://www.ifopt.org.uk/ifopt" xmlns:AD="http://www.ifopt.org.uk/acsb"
xmlns:xs="http://www.w3.org/2001/XMLSchema-instance" version="1.3">
    <AA:ServiceDelivery>
        <AA:ResponseTimestamp>2012-10-04T08:43:39.949</AA:ResponseTimestamp>
        <AA:ProducerRef>ITS4mobility-SX</AA:ProducerRef>
        <AA:Status>true</AA:Status>
        <AA:SituationExchangeDelivery xs:type="AA:SituationExchangeDeliveryStructure" version="1.3">
            <AA:ResponseTimestamp>2012-10-04T08:43:39.949</AA:ResponseTimestamp>
            <AA:SubscriberRef>vasttrafik</AA:SubscriberRef>
            <AA:SubscriptionRef>SX/</AA:SubscriptionRef>
            <AA:Situations>
                <AA:PtSituationElement xs:type="AA:PtSituationElementStructure">
                    <AA:CreationTime>2012-10-04T08:43:39.949</AA:CreationTime>
                    <AA:CountryRef>se</AA:CountryRef>
                    <AA:ParticipantRef>ITS4mobility</AA:ParticipantRef>
                    <AA:SituationNumber>1362552</AA:SituationNumber>
                    <AA:Source>
                        <AA:SourceType>directReport</AA:SourceType>
                        <AA:Name
xs:type="AA:NaturalLanguageStringStructure">wiktorsson.jill</AA:Name>
                    </AA:Source>
                    <AA:Progress>open</AA:Progress>
                    <AA:ValidityPeriod>
                        <AA:StartTime>2012-10-04T08:41:00</AA:StartTime>
                        <AA:EndTime>2012-10-04T09:50:00</AA:EndTime>
                    </AA:ValidityPeriod>
                    <AA:UndefinedReason>08:43:39</AA:UndefinedReason>
                    <AA:Severity>normal</AA:Severity>
                    <AA:Audience>public</AA:Audience>
                    <AA:ReportType>unknown</AA:ReportType>
                    <AA:Description xs:type="AA:DefaultedTextStructure" xml:lang="SV"
overridden="true">Linje 600 med avgångstid klockan 08.13 från Trollhättan Resecentrum är för
närvarande cirka 10 minuter försenad. För exakt avgångstid se realtidsskylten.</AA:Description>
                    <AA:Affects>
                        <AA:StopPoints>
                            <AA:AffectedStopPoint xs:type="AA:AffectedStopPointStructure">
                                <AA:StopPointRef>9022014062716002</AA:StopPointRef>
                            </AA:AffectedStopPoint>
                            <AA:AffectedStopPoint xs:type="AA:AffectedStopPointStructure">
                                <AA:StopPointRef>9022014062715002</AA:StopPointRef>
                            </AA:AffectedStopPoint>
                        </AA:StopPoints>
                    </AA:Affects>
                    <AA:Consequences>
                        <AA:Consequence>
                            <AA:Condition>unknown</AA:Condition>
                            <AA:Severity>normal</AA:Severity>
                        </AA:Consequence>
                    </AA:Consequences>
                </AA:PtSituationElement>
            </AA:Situations>
        </AA:SituationExchangeDelivery>
    </AA:ServiceDelivery>
</AA:Siri>
```

7.4. Example SituationExchangeDelivery with an Audio Extension

```
<?xml version="1.0"?>
<AA:Siri xmlns:AA="http://www.siri.org.uk/siri" xmlns:AD="http://www.ifopt.org.uk/acsb"
xmlns:AC="http://datex2.eu/schema/1_0/1_0" xmlns:AB="http://www.ifopt.org.uk/ifopt"
xmlns:xs="http://www.w3.org/2001/XMLSchema-instance" version="1.4">
        <AA:ServiceDelivery>
                <AA:ResponseTimestamp>2013-09-17T11:19:09.586</AA:ResponseTimestamp>
                <AA:ProducerRef>ITS4mobility-SX</AA:ProducerRef>
                <AA:Status>true</AA:Status>
                <AA:SituationExchangeDelivery xs:type="AA:SituationExchangeDeliveryStructure" version="1.4">
                        <AA:ResponseTimestamp>2013-09-17T11:19:09.586</AA:ResponseTimestamp>
                        <AA:SubscriberRef>ITS4mobilityTestClient</AA:SubscriberRef>
                        <AA:SubscriptionRef>ITS4mobilityTestClient</AA:SubscriptionRef>
                        <AA:Situations>
                                <AA:PtSituationElement xs:type="AA:PtSituationElementStructure">
                                        <AA:CreationTime>2013-09-17T11:19:09.586</AA:CreationTime>
                                        <AA:ParticipantRef>ITS4mobility</AA:ParticipantRef>
                                        <AA:SituationNumber>RT84</AA:SituationNumber>
                                        <AA:Source>
                                                <AA:SourceType>directReport</AA:SourceType>
                                                <AA:Name
xs:type="AA:NaturalLanguageStringStructure">nicklas.johansson</AA:Name>
                                        </AA:Source>
                                        <AA:Progress>open</AA:Progress>
                                        <AA:ValidityPeriod>
                                                <AA:StartTime>2013-09-17T11:21:00.353</AA:StartTime>
                                                <AA:EndTime>2013-09-17T12:51:00.353</AA:EndTime>
                                        </AA:ValidityPeriod>
                                        <AA:UndefinedReason>11:19:09</AA:UndefinedReason>
                                        <AA:Severity>normal</AA:Severity>
                                        <AA:Audience>public</AA:Audience>
                                        <AA:ReportType>unknown</AA:ReportType>
                                        <AA:Description xs:type="AA:DefaultedTextStructure"
overridden="true"> testmeddelande med ljud </AA:Description>
                                        <AA:Affects>
                                                <AA:StopPoints>
                                                        <AA:AffectedStopPoint
xs:type="AA:AffectedStopPointStructure">

        <AA:StopPointRef>9022014007171001</AA:StopPointRef>
                                                        </AA:AffectedStopPoint>
                                                </AA:StopPoints>
                                        </AA:Affects>
                                        <AA:Consequences>
                                                <AA:Consequence>
                                                        <AA:Condition>unknown</AA:Condition>
                                                        <AA:Severity>normal</AA:Severity>
                                                </AA:Consequence>
                                        </AA:Consequences>
                                        <AA:Extensions>
            <ITS4mobility xmlns="http://tmix.se/siri">
              <Audio>
                <ResourceId>AW84</ResourceId>
                <NumberOfRepetitions>10</NumberOfRepetitions>
                <IntervalBetweenRepetitions>600</IntervalBetweenRepetitions>
              </Audio>
            </ITS4mobility>
                                        </AA:Extensions>
                                </AA:PtSituationElement>
                        </AA:Situations>
                </AA:SituationExchangeDelivery>
        </AA:ServiceDelivery>
</AA:Siri>
```

7.5. Example SituationExchangeDelivery with a Temporal Extension

```
<?xml version="1.0"?>
<AA:Siri xmlns:AA="http://www.siri.org.uk/siri" xmlns:AD="http://www.ifopt.org.uk/acsb"
xmlns:AC="http://datex2.eu/schema/1_0/1_0" xmlns:AB="http://www.ifopt.org.uk/ifopt"
xmlns:xs="http://www.w3.org/2001/XMLSchema-instance" version="1.4">
        <AA:ServiceDelivery>
                <AA:ResponseTimestamp>2018-01-15T11:28:13.371</AA:ResponseTimestamp>
                <AA:ProducerRef>ITS4mobility-SX</AA:ProducerRef>
                <AA:Status>true</AA:Status>
                <AA:SituationExchangeDelivery xs:type="AA:SituationExchangeDeliveryStructure" version="1.4">
                        <AA:ResponseTimestamp>2018-01-15T11:28:13.371</AA:ResponseTimestamp>
                        <AA:SubscriberRef>ITS4mobilityTestClient</AA:SubscriberRef>
                        <AA:SubscriptionRef>ITS4mobilityTestClient</AA:SubscriptionRef>
                        <AA:Situations>
                                <AA:PtSituationElement xs:type="AA:PtSituationElementStructure">
                                        <AA:CreationTime>2018-01-15T11:28:13.371</AA:CreationTime>
                                        <AA:ParticipantRef>ITS4mobility</AA:ParticipantRef>
                                        <AA:SituationNumber>1545</AA:SituationNumber>
                                        <AA:Source>
                                                <AA:SourceType>directReport</AA:SourceType>
                                                <AA: >CONSAT\filip.stekovic</AA:Name>
                                        </AA:Source>
                                        <AA:Progress>open</AA:Progress>
                                        <AA:ValidityPeriod>
                                                <AA:StartTime>2017-11-04T10:59:00</AA:StartTime>
                                                <AA:EndTime>2038-01-18T03:14:00</AA:EndTime>
                                        </AA:ValidityPeriod>
                                        <AA:UndefinedReason>11:28:13</AA:UndefinedReason>
                                        <AA:Severity>normal</AA:Severity>
                                        <AA:Audience>public</AA:Audience>
                                        <AA:ReportType>unknown</AA:ReportType>
                                        <AA: >SIRI/SX temporals</AA:Description>
                                        <AA:Affects>
                                                <AA:Networks>
                                                        <AA:AffectedNetwork>
                                                                <AA:VehicleMode>unknown</AA:VehicleMode>
                                                                <AA:AffectedLine>
                                                                        <AA:LineRef>2</AA:LineRef>
                                                                </AA:AffectedLine>
                                                        </AA:AffectedNetwork>
                                                </AA:Networks>
                                        </AA:Affects>
                                        <AA:Consequences>
                                                <AA:Consequence>
                                                        <AA:Condition>unknown</AA:Condition>
                                                        <AA:Severity>normal</AA:Severity>
                                                </AA:Consequence>
                                        </AA:Consequences>
                                        <AA:Extensions>
                                               <ITS4mobility xmlns="http://tmix.se/siri">
                                                 <Temporals>
                                                   <Temporal>
                                                     <Days>
                                                       <Day>monday</Day>
                                                       <Day>wednesday</Day>
                                                       <Day>friday</Day>
                                                     </Days>
                                                     <Interval>
                                                       <From>00:08:00</From>
                                                       <To>09:00:00</To>
                                                     </Interval>
                                                   </Temporal>
                                                   <Temporal>
                                                     <Days>
                                                       <Day>tuesday</Day>
```

```
                                        <Day>thursday</Day>
                                      </Days>
                                      <Interval>
                                        <From>00:09:00</From>
                                        <To>10:00:00</To>
                                      </Interval>
                                    </Temporal>
                                  </Temporals>
                                </ITS4mobility>
                              </AA:Extensions>
                            </AA:PtSituationElement>
                          </AA:Situations>
                        </AA:SituationExchangeDelivery>
                      </AA:ServiceDelivery>
</AA:Siri>
```

7.6. Example SituationExchangeDelivery With Multiple Situations In A Single Document

```
<?xml version="1.0"?>
<AA:Siri xmlns:AA="http://www.siri.org.uk/siri" xmlns:AD="http://www.ifopt.org.uk/acsb"
xmlns:AC="http://datex2.eu/schema/1_0/1_0" xmlns:AB="http://www.ifopt.org.uk/ifopt"
xmlns:xs="http://www.w3.org/2001/XMLSchema-instance" version="1.4">
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                <AA:Status>true</AA:Status>
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                        <AA:ResponseTimestamp>2016-04-12T00:54:28.274</AA:ResponseTimestamp>
                        <AA:SubscriberRef>ITS4mobilityTestClient</AA:SubscriberRef>
                        <AA:SubscriptionRef>ITS4mobilityTestClient</AA:SubscriptionRef>
                        <AA:Situations>
                                <AA:PtSituationElement xs:type="AA:PtSituationElementStructure">
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                                        <AA:SituationNumber>1001247</AA:SituationNumber>
                                        <AA:References>
                                                <AA:RelatedToRef>
                                                        <AA:CreationTime>2016-04-
12T00:54:28.274</AA:CreationTime>
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                                                        <AA:RelatedAs>associated</AA:RelatedAs>
                                                </AA:RelatedToRef>
                                                <AA:RelatedToRef>
                                                        <AA:CreationTime>2016-04-
12T00:54:28.274</AA:CreationTime>
                                                        <AA:SituationNumber>21001250</AA:SituationNumber>
                                                        <AA:RelatedAs>associated</AA:RelatedAs>
                                                </AA:RelatedToRef>
                                        </AA:References>
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                                                <AA:SourceType>directReport</AA:SourceType>
                                                <AA:Name
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                                        </AA:Source>
                                        <AA:Progress>open</AA:Progress>
                                        <AA:ValidityPeriod>
                                                <AA:StartTime>2016-04-12T00:52:00</AA:StartTime>
                                                <AA:EndTime>2016-04-12T03:59:00</AA:EndTime>
                                        </AA:ValidityPeriod>
                                        <AA:UndefinedReason>00:54:28</AA:UndefinedReason>
                                        <AA:Severity>normal</AA:Severity>
                                        <AA:Audience>public</AA:Audience>
                                        <AA:ReportType>unknown</AA:ReportType>
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                                                <AA:Networks>
                                                        <AA:AffectedNetwork>
                                                                <AA:VehicleMode>unknown</AA:VehicleMode>
                                                                <AA:AffectedLine>
                                                                        <AA:LineRef>2</AA:LineRef>
                                                                </AA:AffectedLine>
                                                        </AA:AffectedNetwork>
                                                </AA:Networks>
                                        </AA:Affects>
                                        <AA:Consequences>
                                                <AA:Consequence>
                                                        <AA:Condition>cancelled</AA:Condition>
                                                        <AA:Severity>normal</AA:Severity>
                                                        <AA:Blocking>
                                                                <AA:JourneyPlanner>false</AA:JourneyPlanner>
                                                                <AA:RealTime>false</AA:RealTime>
                                                        </AA:Blocking>
                                                </AA:Consequence>
                                        </AA:Consequences>
                                </AA:PtSituationElement>
                                <AA:PtSituationElement xs:type="AA:PtSituationElementStructure">
```


```
                                        <AA:CreationTime>2016-04-12T00:54:28.274</AA:CreationTime>
                                        <AA:ParticipantRef>ITS4mobility</AA:ParticipantRef>
                                        <AA:SituationNumber>1001248</AA:SituationNumber>
                                        <AA:References>
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                                                        <AA:CreationTime>2016-04-
12T00:54:28.274</AA:CreationTime>
                                                        <AA:SituationNumber>1001247</AA:SituationNumber>
                                                        <AA:RelatedAs>associated</AA:RelatedAs>
                                                </AA:RelatedToRef>
                                                <AA:RelatedToRef>
                                                        <AA:CreationTime>2016-04-
12T00:54:28.274</AA:CreationTime>
                                                        <AA:SituationNumber>21001250</AA:SituationNumber>
                                                        <AA:RelatedAs>associated</AA:RelatedAs>
                                                </AA:RelatedToRef>
                                        </AA:References>
                                        <AA:Source>
                                                <AA:SourceType>directReport</AA:SourceType>
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xs:type="AA:NaturalLanguageStringStructure">CONSAT\demo (torbjorn.backstrom)</AA:Name>
                                        </AA:Source>
                                        <AA:Progress>open</AA:Progress>
                                        <AA:ValidityPeriod>
                                                <AA:StartTime>2016-04-12T00:52:00</AA:StartTime>
                                                <AA:EndTime>2016-04-12T03:59:00</AA:EndTime>
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                                                        </AA:AffectedStopPoint>
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                                        </AA:Affects>
                                        <AA:Consequences>
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                                                        <AA:Condition>cancelled</AA:Condition>
                                                        <AA:Severity>normal</AA:Severity>
                                                        <AA:Blocking>
                                                                <AA:JourneyPlanner>false</AA:JourneyPlanner>
                                                                <AA:RealTime>false</AA:RealTime>
                                                        </AA:Blocking>
                                                </AA:Consequence>
                                        </AA:Consequences>
                                </AA:PtSituationElement>
                                <AA:PtSituationElement xs:type="AA:PtSituationElementStructure">
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                                        <AA:SituationNumber>21001250</AA:SituationNumber>
                                        <AA:References>
                                                <AA:RelatedToRef>
                                                        <AA:CreationTime>2016-04-
12T00:54:28.274</AA:CreationTime>
                                                        <AA:SituationNumber>1001247</AA:SituationNumber>
                                                        <AA:RelatedAs>associated</AA:RelatedAs>
```

```
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                                        <AA:RelatedToRef>
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12T00:54:28.274</AA:CreationTime>
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                                                <AA:RelatedAs>associated</AA:RelatedAs>
                                        </AA:RelatedToRef>
                                </AA:References>
                                <AA:Source>
                                        <AA:SourceType>directReport</AA:SourceType>
                                        <AA:Name
xs:type="AA:NaturalLanguageStringStructure">CONSAT\demo (torbjorn.backstrom)</AA:Name>
                                </AA:Source>
                                <AA:Progress>open</AA:Progress>
                                <AA:ValidityPeriod>
                                        <AA:StartTime>2016-04-12T00:52:00</AA:StartTime>
                                        <AA:EndTime>2016-04-12T03:59:00</AA:EndTime>
                                </AA:ValidityPeriod>
                                <AA:UndefinedReason>00:54:28</AA:UndefinedReason>
                                <AA:Severity>normal</AA:Severity>
                                <AA:Audience>public</AA:Audience>
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overridden="true">This is traffic information.</AA:Description>
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                                                        <AA:VehicleMode>unknown</AA:VehicleMode>
                                                        <AA:AffectedLine>
                                                                <AA:LineRef>10</AA:LineRef>
                                                        </AA:AffectedLine>
                                                </AA:AffectedNetwork>
                                        </AA:Networks>
                                        <AA:StopPoints>
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                                                </AA:AffectedStopPoint>
                                                <AA:AffectedStopPoint
xs:type="AA:AffectedStopPointStructure">
                                                        <AA:StopPointRef>12011097</AA:StopPointRef>
                                                </AA:AffectedStopPoint>
                                                <AA:AffectedStopPoint
xs:type="AA:AffectedStopPointStructure">
                                                        <AA:StopPointRef>12011098</AA:StopPointRef>
                                                </AA:AffectedStopPoint>
                                        </AA:StopPoints>
                                </AA:Affects>
                                <AA:Consequences>
                                        <AA:Consequence>
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                                                <AA:Severity>normal</AA:Severity>
                                        </AA:Consequence>
                                </AA:Consequences>
                        </AA:PtSituationElement>
                </AA:Situations>
        </AA:SituationExchangeDelivery>
    </AA:ServiceDelivery>
</AA:Siri>
```