

**DIN IEC 61968-8**

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**Entwurf****Integration von Anwendungen in Anlagen der Elektrizitätsversorgung –  
Systemschnittstellen für Netzführung –  
Teil 8: Schnittstellen Normen für den Kundendienst  
(IEC 57/1126/CD:2011), Text in Englisch**

Application integration at electric utilities –  
System interfaces for distribution management –  
Part 8: Interface Standard For Customer Support  
(IEC 57/1126/CD:2011), Text in English

**Anwendungswarnvermerk**

Dieser Norm-Entwurf mit Erscheinungsdatum 2013-04-22 wird der Öffentlichkeit zur Prüfung und Stellungnahme vorgelegt.

Weil die beabsichtigte Norm von der vorliegenden Fassung abweichen kann, ist die Anwendung dieses Entwurfes besonders zu vereinbaren.

Stellungnahmen werden erbeten

- vorzugsweise online im Norm-Entwurfs-Portal des DIN unter [www.entwuerfe.din.de](http://www.entwuerfe.din.de) bzw. für Norm-Entwürfe der DKE auch im Norm-Entwurfs-Portal der DKE unter [www.entwuerfe.normenbibliothek.de](http://www.entwuerfe.normenbibliothek.de), sofern dort wiedergegeben;
- oder als Datei per E-Mail an [dke@din.de](mailto:dke@din.de) möglichst in Form einer Tabelle. Die Vorlage dieser Tabelle kann im Internet unter [www.din.de/stellungnahme](http://www.din.de/stellungnahme) oder für Stellungnahmen zu Norm-Entwürfen der DKE unter [www.dke.de/stellungnahme](http://www.dke.de/stellungnahme) abgerufen werden;
- oder in Papierform an die DKE Deutsche Kommission Elektrotechnik Elektronik Informationstechnik im DIN und VDE (Hausanschrift: Stresemannallee 15, 60596 Frankfurt am Main).

Die Empfänger dieses Norm-Entwurfs werden gebeten, mit ihren Kommentaren jegliche relevanten Patentrechte, die sie kennen, mitzuteilen und unterstützende Dokumentationen zur Verfügung zu stellen.

Gesamtumfang 245 Seiten

DKE Deutsche Kommission Elektrotechnik Elektronik Informationstechnik im DIN und VDE

## Nationales Vorwort

Die englische Originalfassung des internationalen Dokuments IEC 57/1126/CD:2011 „Application integration at electric utilities – System interfaces for distribution management – Part 8: Interface Standard For Customer Support“ (CD, en: Committee Draft) ist unverändert in diesen Norm-Entwurf übernommen worden.

Das internationale Dokument wurde vom TC 57 „Power systems management and associated information exchange“ der Internationalen Elektrotechnischen Kommission (IEC) erarbeitet und den nationalen Komitees zur Stellungnahme vorgelegt.

Die IEC und das Europäische Komitee für Elektrotechnische Normung (CENELEC) haben vereinbart, dass ein auf IEC-Ebene erarbeiteter Entwurf für eine Internationale Norm zeitgleich (parallel) bei IEC und CENELEC zur Umfrage (CDV-Stadium) und Abstimmung als FDIS (en: Final Draft International Standard) bzw. Schluss-Entwurf für eine Europäische Norm gestellt wird, um eine Beschleunigung und Straffung der Normungsarbeit zu erreichen. Dokumente, die bei CENELEC als Europäische Norm angenommen und ratifiziert werden, sind unverändert als Deutsche Normen zu übernehmen.

Da der Abstimmungszeitraum für einen FDIS bzw. Schluss-Entwurf prEN nur 2 Monate beträgt, und dann keine sachlichen Stellungnahmen mehr abgegeben werden können, sondern nur noch eine „JA/NEIN“-Entscheidung möglich ist, wobei eine „NEIN“-Entscheidung fundiert begründet werden muss, wird bereits der CD als DIN-Norm-Entwurf veröffentlicht, um die Stellungnahmen aus der Öffentlichkeit frühzeitig berücksichtigen zu können.

Für dieses Dokument ist das nationale Arbeitsgremium K 952 „Netzleittechnik“ der DKE Deutsche Kommission Elektrotechnik Elektronik Informationstechnik im DIN und VDE ([www.dke.de](http://www.dke.de)) zuständig.

Für den Fall einer undatierten Verweisung im normativen Text (Verweisung auf eine Norm ohne Angabe des Ausgabedatums und ohne Hinweis auf eine Abschnittsnummer, eine Tabelle, ein Bild usw.) bezieht sich die Verweisung auf die jeweils neueste gültige Ausgabe der in Bezug genommenen Norm.

Für den Fall einer datierten Verweisung im normativen Text bezieht sich die Verweisung immer auf die in Bezug genommene Ausgabe der Norm.

Der Zusammenhang der zitierten Normen mit den entsprechenden Deutschen Normen ergibt sich, soweit ein Zusammenhang besteht, grundsätzlich über die Nummer der entsprechenden IEC-Publikation. Beispiel: IEC 60068 ist als EN 60068 als Europäische Norm durch CENELEC übernommen und als DIN EN 60068 ins Deutsche Normenwerk aufgenommen.

Das Präsidium des DIN hat mit Präsidialbeschluss 1/2004 festgelegt, dass DIN-Normen, deren Inhalt sich auf internationale Arbeitsergebnisse der Informationsverarbeitung gründet, unter bestimmten Bedingungen allein in englischer Sprache veröffentlicht werden dürfen. Diese Bedingungen sind für die vorliegenden Normentwurf erfüllt.

Da sich die Benutzer des vorliegenden Normentwurfs der englischen Sprache als Fachsprache bedienen, wird die Englische Fassung der IEC 61968-8 veröffentlicht. Für die meisten der verwendeten Begriffe existieren keine gebräuchlichen deutschen Benennungen, da sich die deutschen Anwender in der Regel ebenfalls der englischen Benennungen bedienen. Dieser Normentwurf steht nicht in unmittelbarem Zusammenhang mit Rechtsvorschriften und ist nicht als Sicherheitsnorm anzusehen.

Es ist vorgesehen, auch bei der entsprechenden zukünftigen Deutschen Norm auf die deutsche Sprachfassung zu verzichten und diese in der englischsprachigen Fassung zu veröffentlichen.

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**System Interfaces For Distribution Management –**

**Part 8: Interface Standard for Customer Support**

FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of the IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.
- 3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
- 5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
- 6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 61968 has been prepared by Working Group 14, of IEC technical committee 57: Power System Control And Associated Communications.

The text of this standard is based on the following documents:

|          |                  |
|----------|------------------|
| FDIS     | Report on voting |
| 57/----- | 57/-----         |

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

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**IEC 61968**  
**Application integration at electric utilities**

**System Interfaces For Distribution Management –**

**Part 8: Interface Standard for Customer Support**

Introduction

The IEC 61968 series of standards is intended to facilitate *inter-application integration* as opposed to *intra-application integration*. Intra-application integration is aimed at programs in the same application system, usually communicating with each other using middleware that is embedded in their underlying runtime environment, and tends to be optimised for close, real-time, synchronous connections and interactive request/reply or conversation communication models. IEC 61968, by contrast, is intended to support the inter-application integration of a utility enterprise that needs to connect disparate applications that are already built or new (legacy or purchased applications), each supported by dissimilar runtime environments. Therefore, these interface standards are relevant to loosely coupled applications with more heterogeneity in languages, operating systems, protocols and management tools. This series of standards is intended to support applications that need to exchange data every few seconds, minutes, or hours rather than waiting for a nightly batch run. This series of standards, which are intended to be implemented with middleware services that exchange messages among applications, will complement, not replace utility data warehouses, database gateways, and operational stores.

As used in IEC 61968, a DMS consists of various distributed application components for the utility to manage electrical distribution networks. These capabilities include monitoring and control of equipment for power delivery, management processes to ensure system reliability, voltage management, demand-side management, outage management, work management, automated mapping and facilities management. Standards interfaces are defined for each class of applications identified in the Interface reference model (IRM), which is described in IEC 61968-1.

This Part of IEC 61968 contains the Clauses shown in Table 1.

| Clause | Title                            | Purpose                                                                                                                                                                                                                                                                                       |
|--------|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.     | Scope                            | The scope and purpose of the document are described.                                                                                                                                                                                                                                          |
| 2.     | Normative References             | Documents that contain provisions which, through reference in this text, constitute provisions of this International Standard.                                                                                                                                                                |
| 3.     | Reference and Information Models | Description of the relevant parts of the interface reference model, static information model and message type naming convention.                                                                                                                                                              |
| 4.     | Customer Support Message Types   | Message types related to the exchange of information for operational documents namely: <ul style="list-style-type: none"><li>▪ Trouble Ticket</li><li>▪ Failure Event</li><li>▪ Planned Outage Notification</li><li>▪ Call Back</li><li>▪ Compliance Event</li><li>▪ Outage History</li></ul> |

|  |  |                                                                                                                                                                                                   |
|--|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  |  | <ul style="list-style-type: none"><li>▪ Service Extension Request</li><li>▪ ServiceRequest</li><li>▪ CustomerServiceAgreement</li><li>▪ Customer Billing</li><li>▪ Construction Billing</li></ul> |
|--|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Table 1: Document Overview For IEC 61968 - Part 8**

## 1 Scope

### 1.1 Scope of this Part

This Part of IEC 61968 specifies the information content of a set of message types that can be used to support many of the business functions related to Customer Service and Trouble Call Management. Message types defined in other Parts of IEC 61968 may also be relevant to customer support use cases.

## 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 61968-1, *Application integration at electric utilities - System interfaces for distribution management - Part 1: Interface architecture and general requirements*

## 3 Reference and information models

### 3.1 General

The message types defined in this IEC 61968-8 document are based on a logical partitioning of the DMS business functions and components called the IEC 61968-1 Interface Reference Model (IRM).

As described, in IEC 61968-1, the contents of the message types are based on a static information model to ensure consistency of field names and data types. Each message type is defined as a set of fields copied from the information model classes. The message types defined in this standard are intended to satisfy a majority of typical applications. In some particular project implementations, it may be desirable to modify the set of fields using a methodology such as that described in Part 1.

### 3.2 Interface reference model

It is not the intention of this IEC 61968 series of standards to define the applications and systems that vendors should produce. It is expected that a concrete (physical) application will provide the functionality of one or more abstract (logical) components as listed in this standard. These abstract components are grouped by the business functions of the IEC 61968-1 Interface reference model.

## Interfaces

1. **TroubleTicket**
2. **CallBack**
3. *EndDeviceEvent*
4. *ScheduledEvent*
5. *OutageRecord*
6. **ComplianceEvent**
7. **ServiceRequest**
8. **MeterServiceOrder**
9. **CustomerAgreement**
10. **BillingDeterminant**
11. *EndDeviceControl*
12. *PanDeviceAsset*
13. *EndDeviceAsset*
14. *MeterReading*

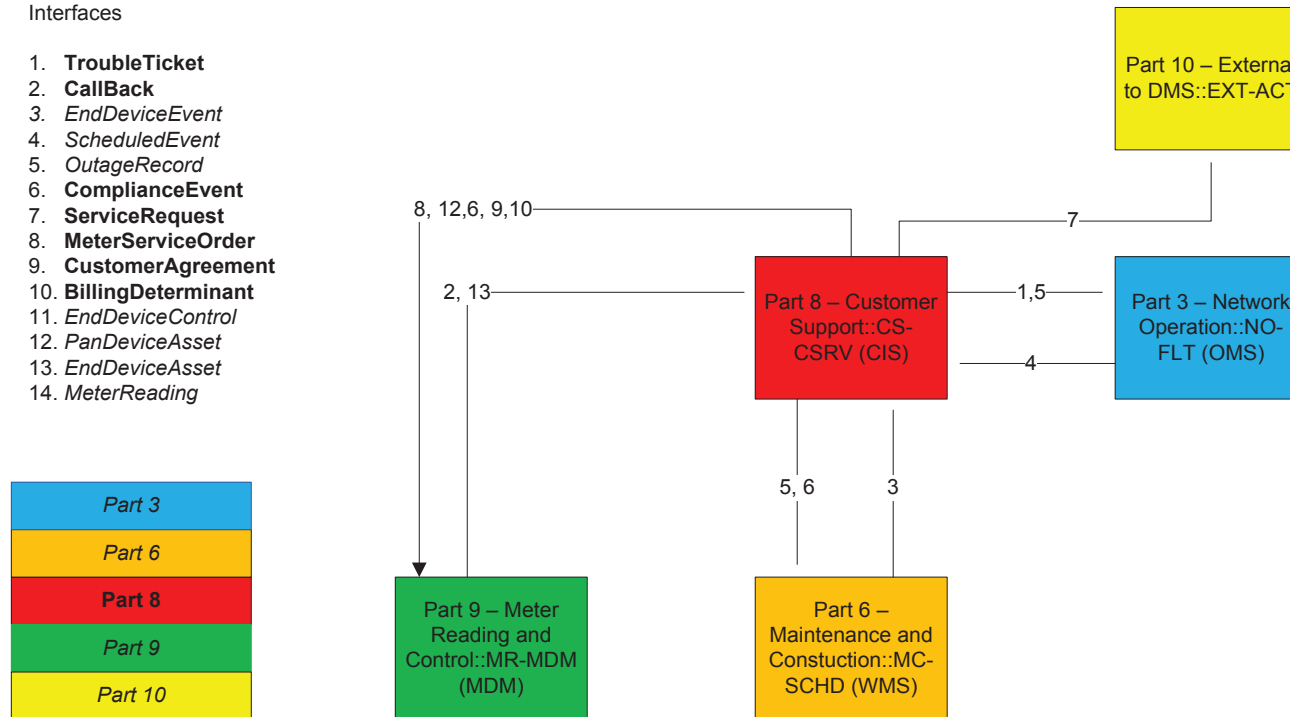


Figure 1: Part 8 Interface Reference Model

### **3.3 Customer Support functions and components**

The Records and Asset Management part of the IEC 61968-1 Interface reference model shows those functions and typical components that are applicable to the message types defined in this Part of IEC 61968.

For the message types defined in this IEC 61968-8 document, it is expected that the typical abstract components listed below will be producers of information. Typical consumers of the information are the other components as listed in IEC 61968-1.

### **3.4 Static Information Model**

#### **3.4.1 Information model classes**

The information model relevant to records and asset management consists of classes that provide a template for the attributes for each message. The classes are defined in detail in IEC 61968-11 or 61970-301.

## 4 Customer Support Message Types

### 4.1 Summary

The Customer Support message types describe information for the following types of document.

- Trouble Ticket
- Call Back
- Compliance Event
- Service Request
- Meter Service Order
- Customer Agreement
- Billing Determinant

For all message types shown in this IEC 61968-8 document, elements that correspond with CIM classes contain all native and inherited attributes of that class. Unless explicitly shown otherwise, all message type associations are simple associations.

### 4.2 TroubleTicket

When outage is not due to a Scada Trip, Electric Utilities depend on the calls from the customers to identify the location of the fault. The Trouble Ticket contains the information of a customer call.

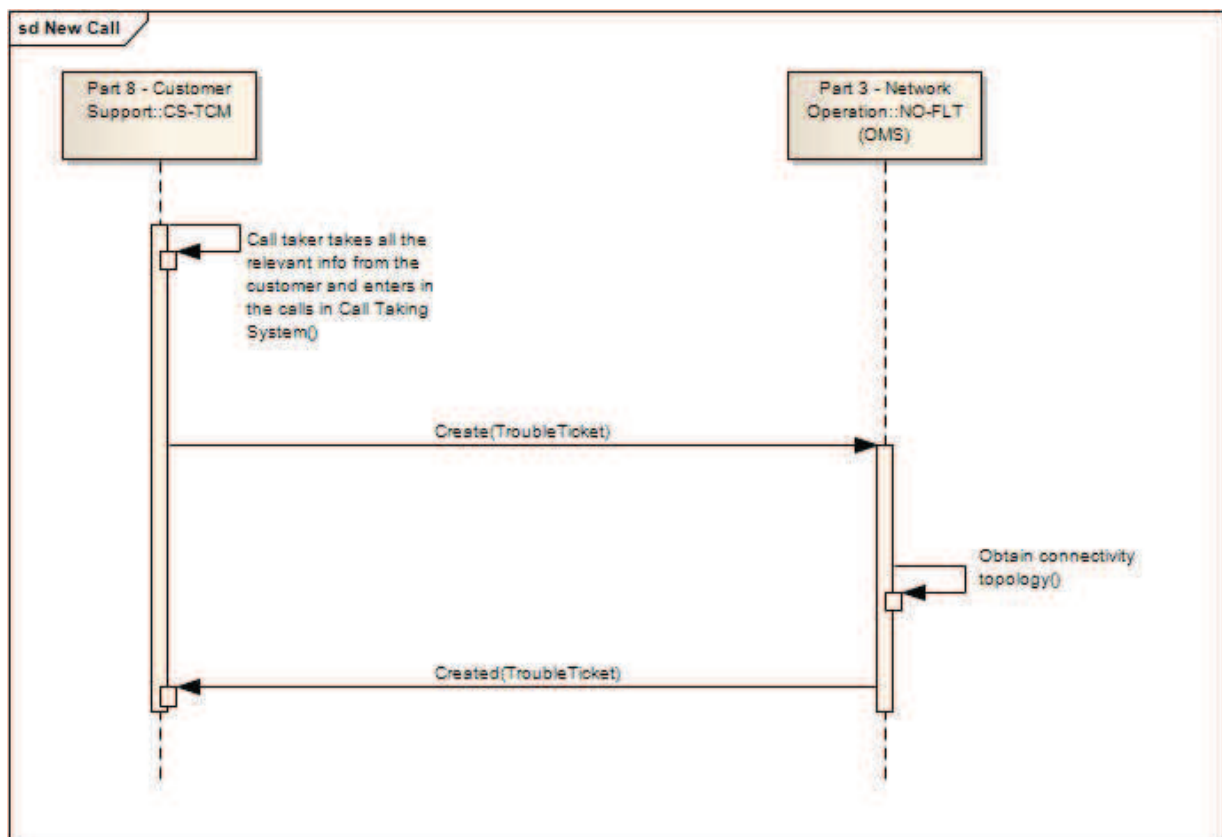


Figure 4.2: New Call/Trouble Ticket Creation

#### **4.2.1 Message Format**

The TroubleTicket message is primarily made up of the CustomerData and IncidentRecords classes.

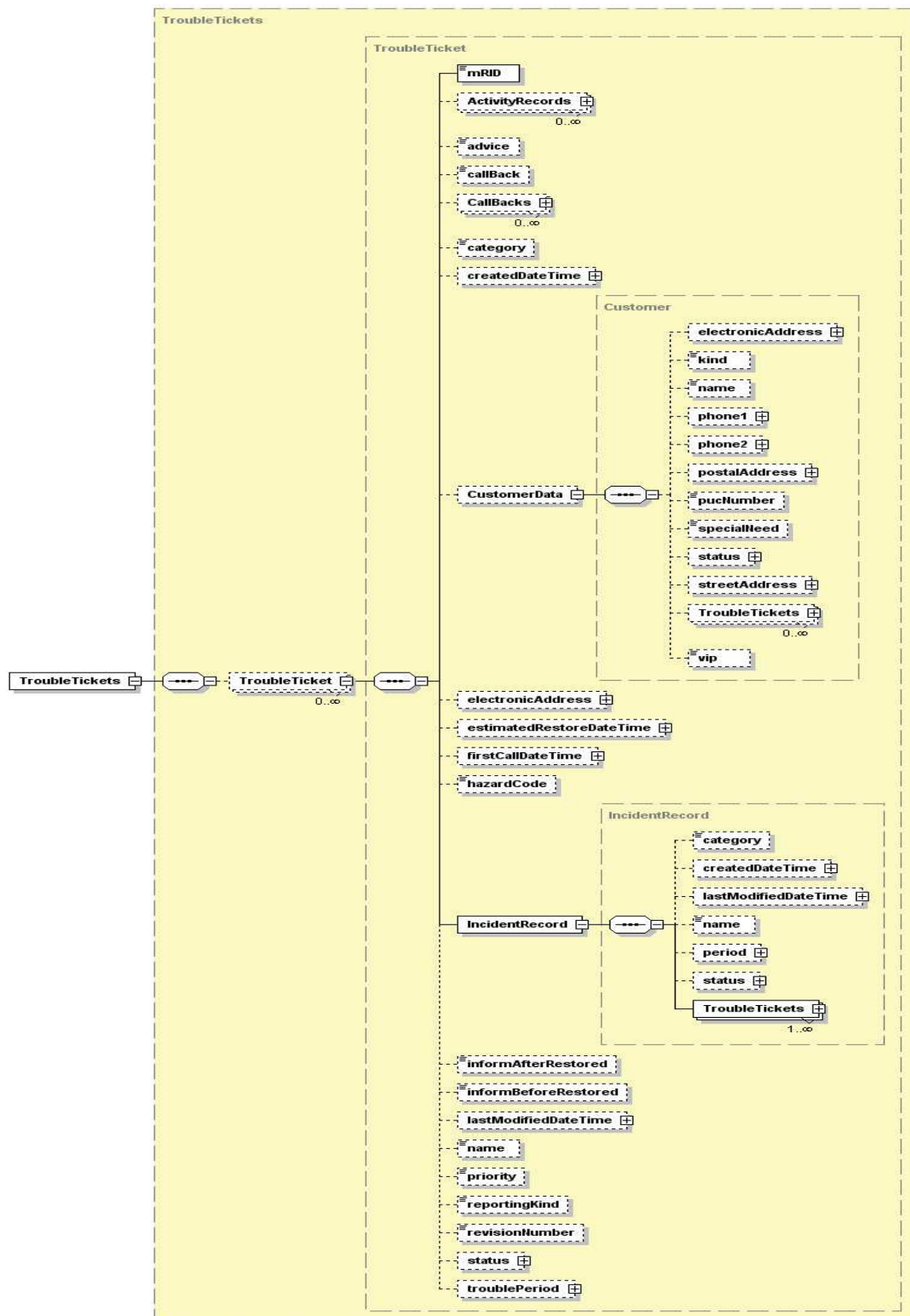


Figure 4.2.1 – Trouble Ticket Message

### 4.3 Call Back

When making a trouble call, some callers request for a call back at a certain point in the restoration phase e.g. at the time of arrival of the crew or when the supply is restored. This message needs to be created when the call back is due and lists the customers requiring call back.

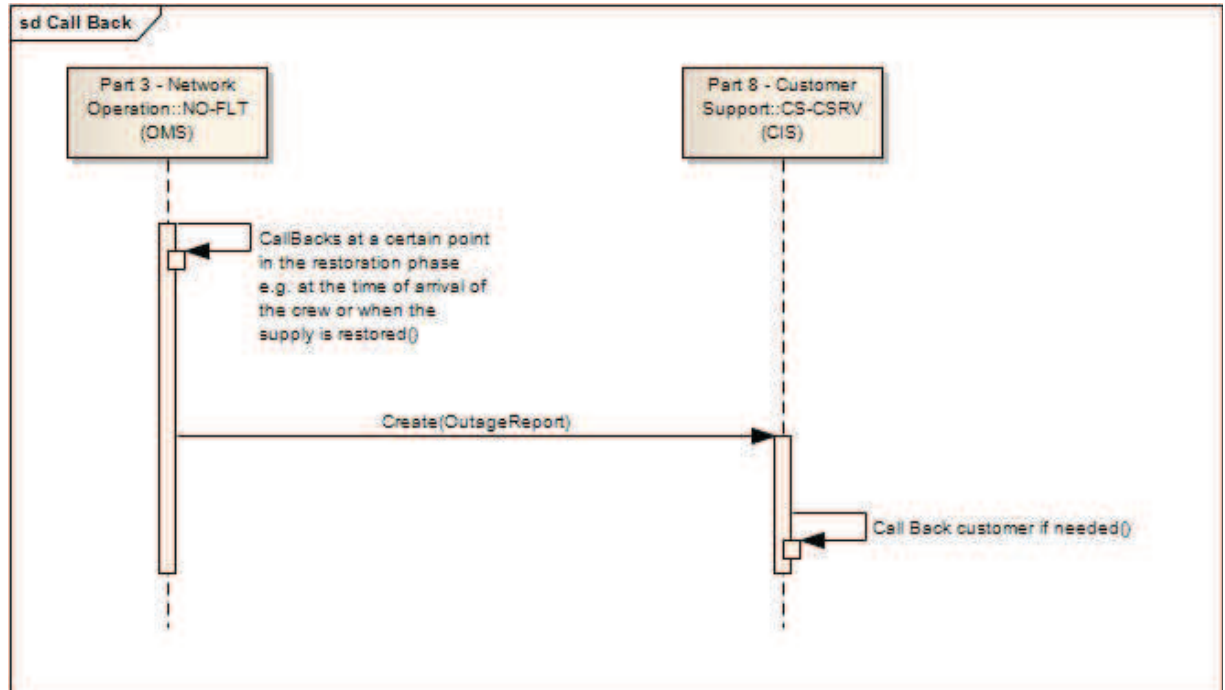
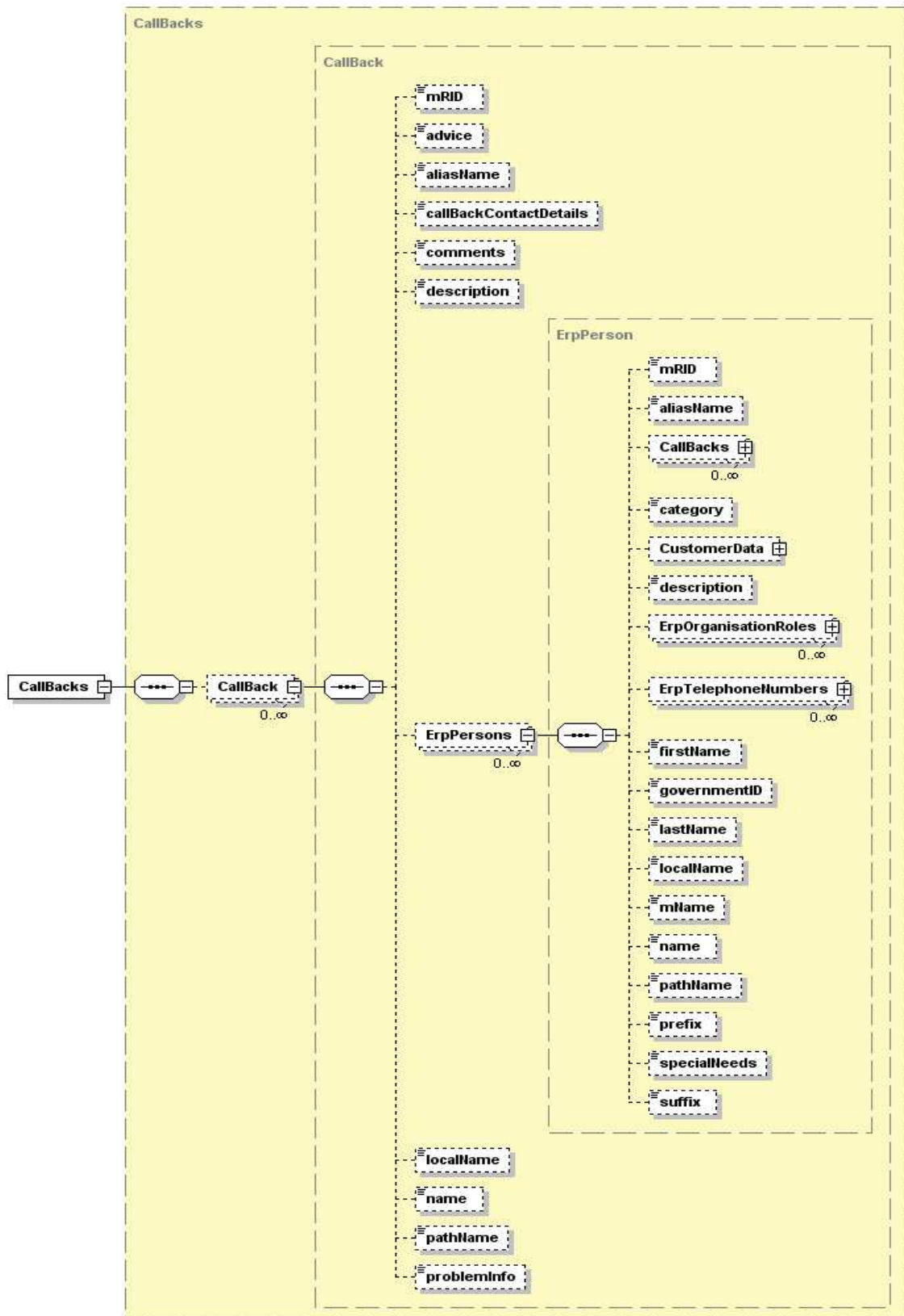


Figure 4.3: Call Back

#### **4.3.1 Message Format**

The CallBack message consists primarily of the ErpPersons class.



#### 4.3.1 Callback Message: ErpPerson

#### 4.4 Compliance Event

If the restoration time for an outage goes over a time limit specified by the regulatory standard, the customers affected beyond the specified time have to be compensated. This forces the electric utilities to restore supply to as many customers as soon as possible. Some utilities want the customer information system to warn the dispatcher prior to the violation of the regulatory standard.

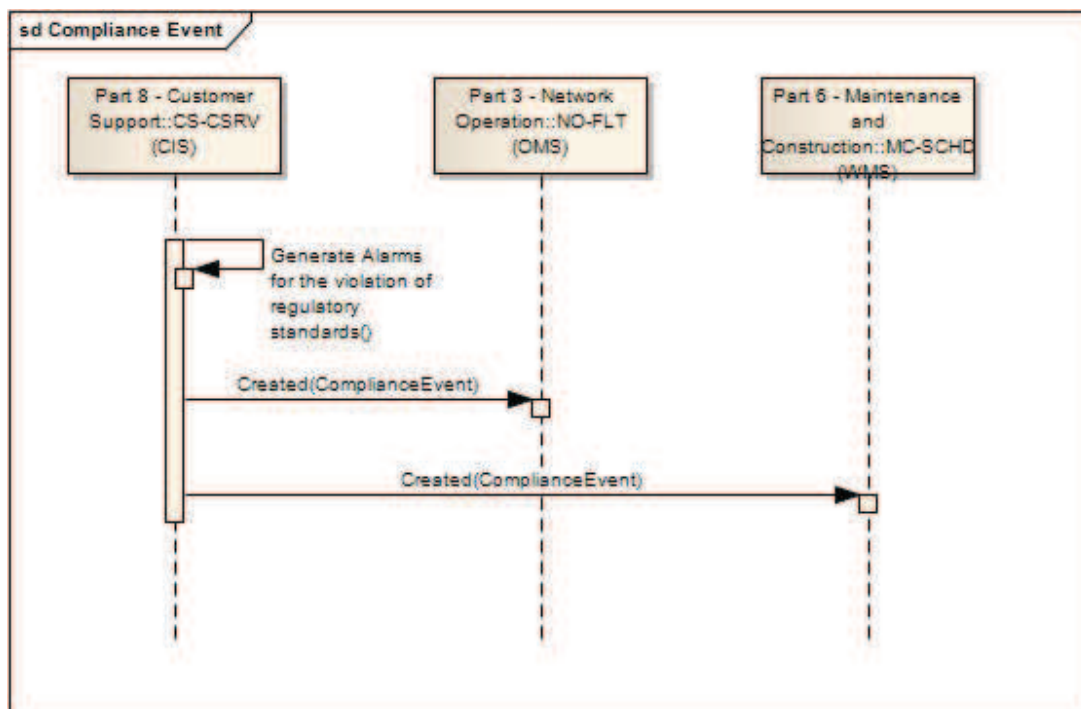


Figure 4.4: Compliance Event

##### 4.4.1 Message Format

The ComplianceEvent message consists of three primary pieces of information: The customer information, the incident information, and the location of the customer. These are represented by the following classes respectively: ErpPerson, TroubleTicket, and Location.

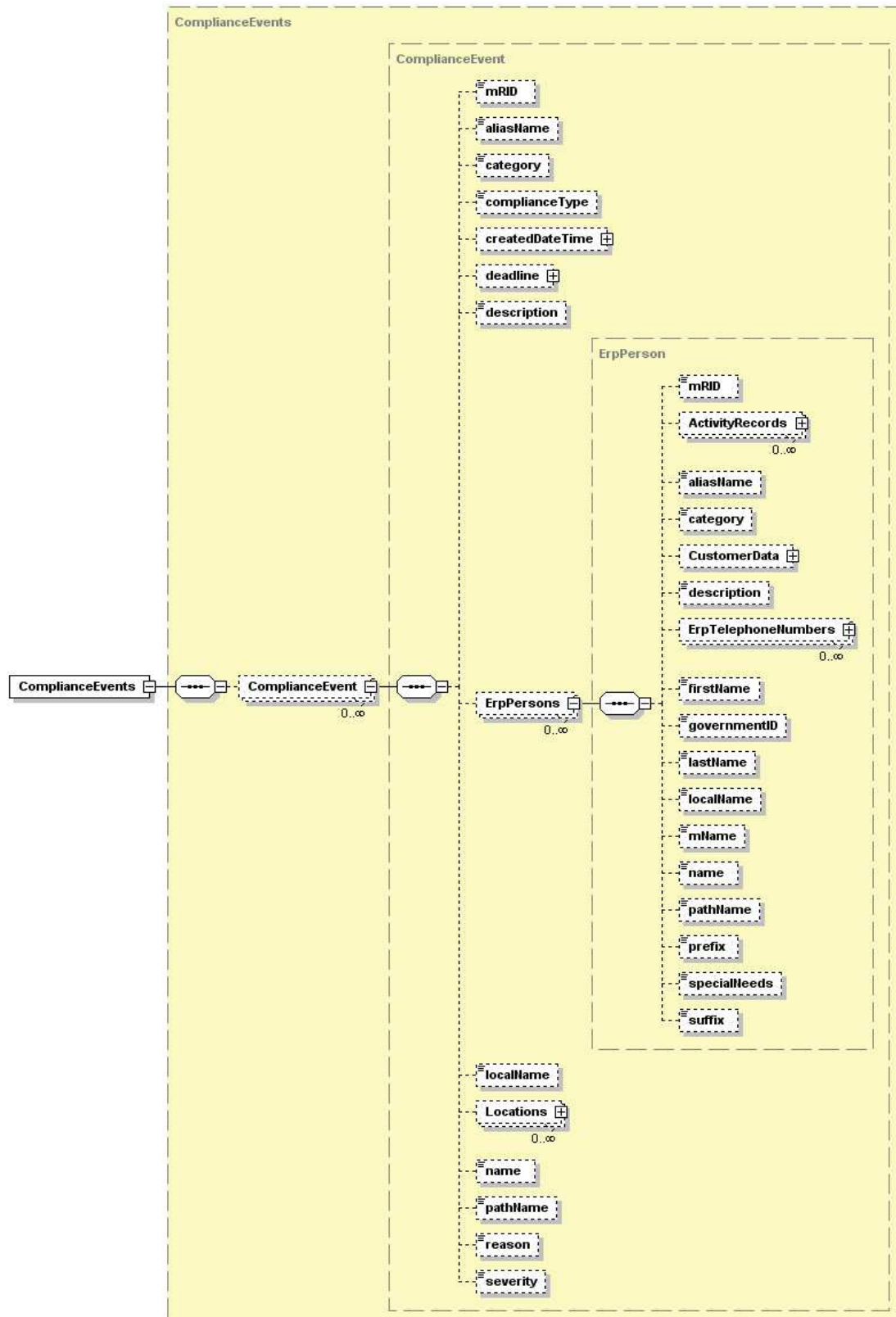


Figure 4.4.1 – Compliance Event Message: ErpPerson

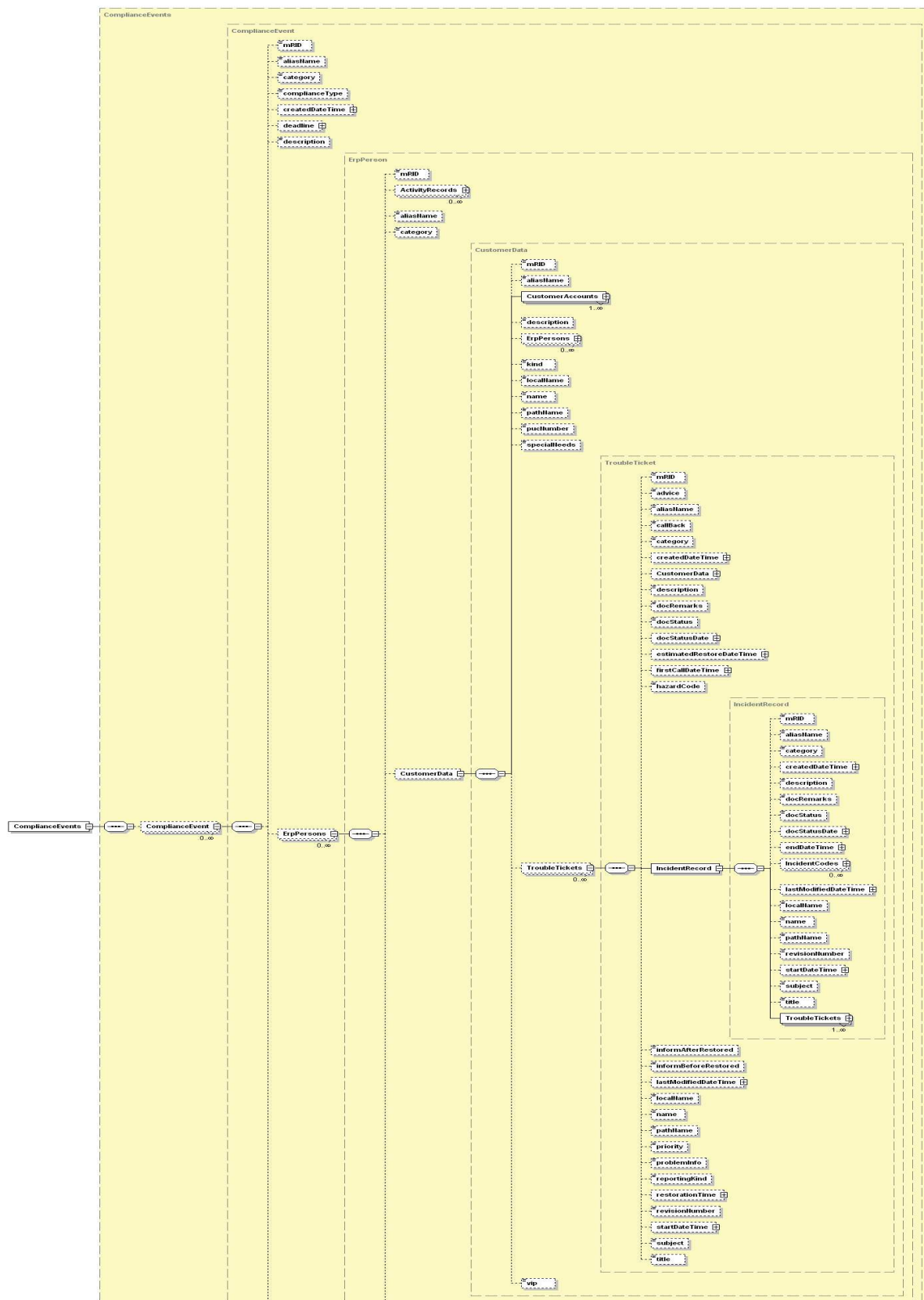


Figure 4.4.2 – Compliance Event Message: TroubleTicket

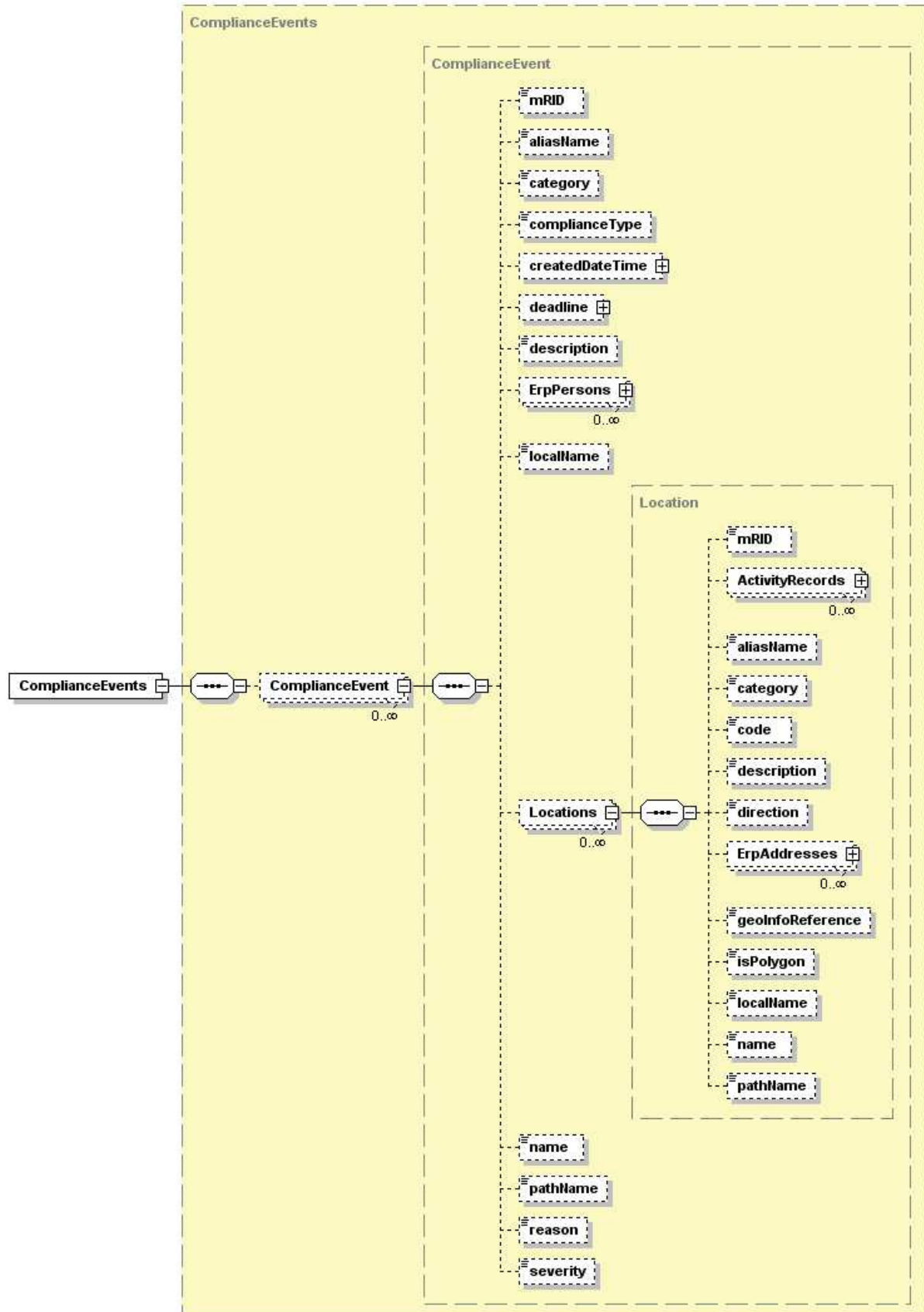


Figure 4.4.2 – Compliance Event Message: Location

#### 4.5 Service Request

Existing supply can be turned on or off by the customer or due to non-payment of bill. Also, a customer may initiate a change in service (or contracted rates) which would require their meter to be reconfigured or even replaced. Additionally, a customer may request other services such as a streetlight, a voltage check, meter verification, etc. The information from the initial customer contact allows utilities to determine the appropriate course of action to provide (or change) service.

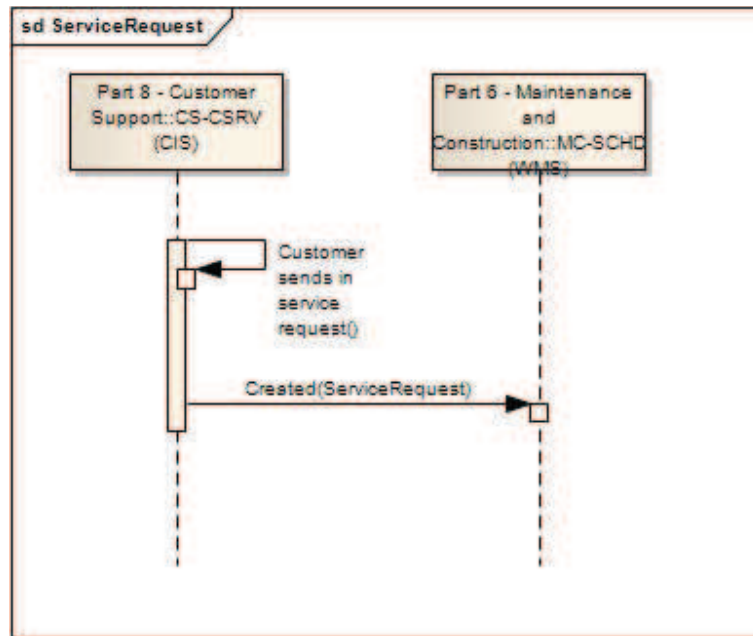


Figure 4.5: Service Request

##### 4.5.1 Message Format

The message payload for ServiceRequest consists of the following classes: Organization and ScheduleParameterInfo. Organization contains information regarding the customer. ScheduledParameter Info contains information regarding scheduling and general information of the service request.

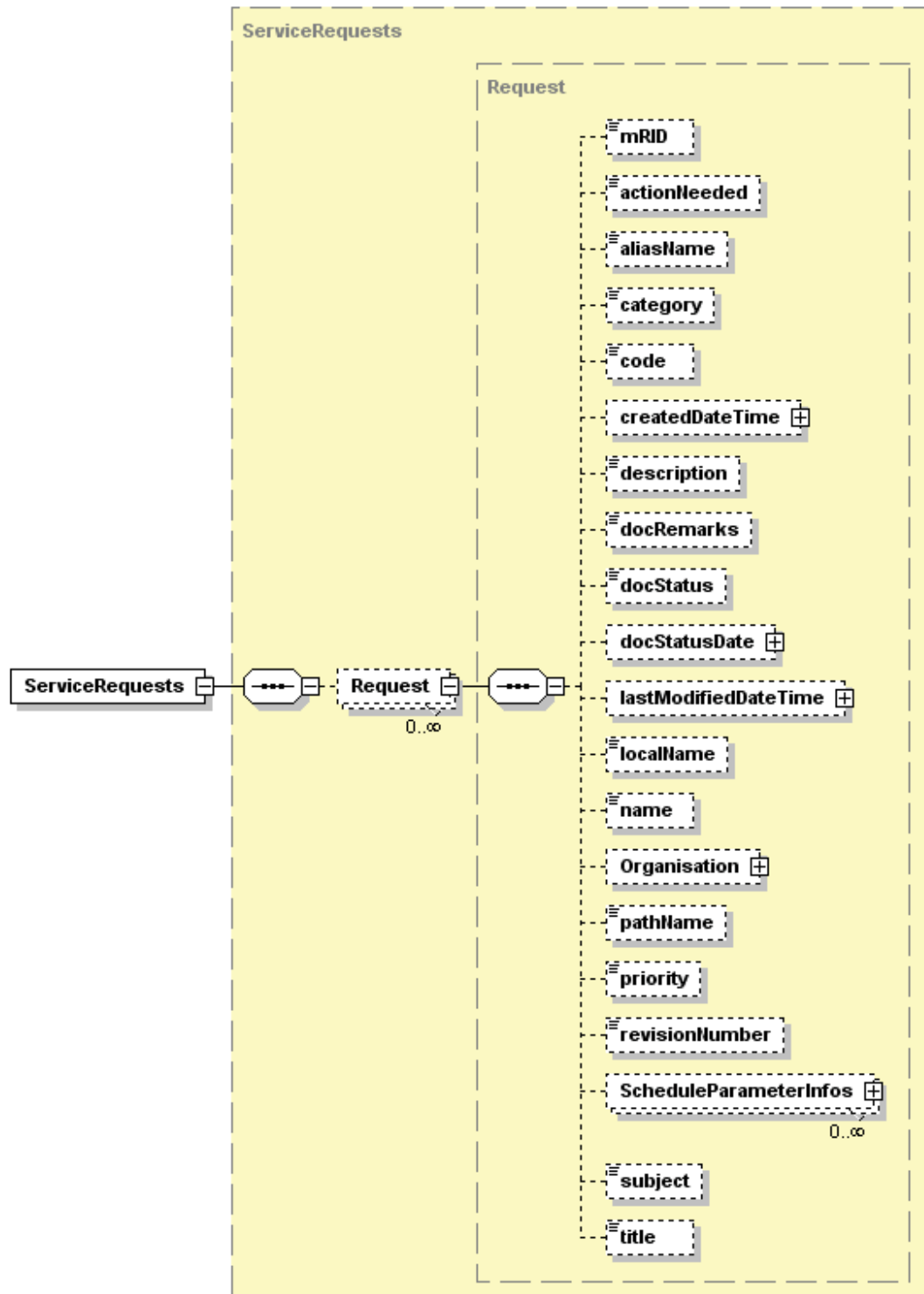


Figure 4.5.1 – Service Request Message Format

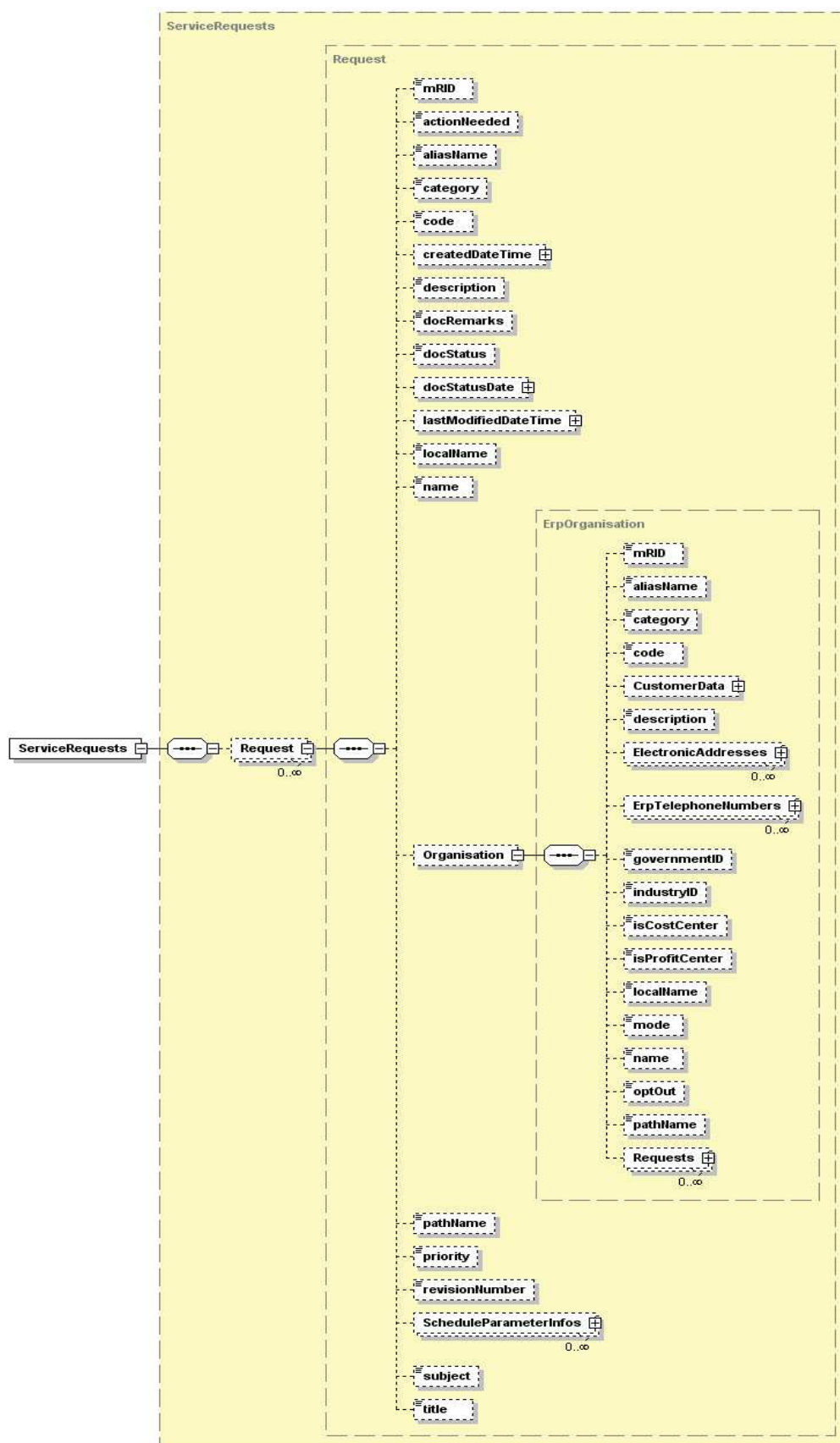


Figure 4.5.2 – Service Request Message Format: Organisation

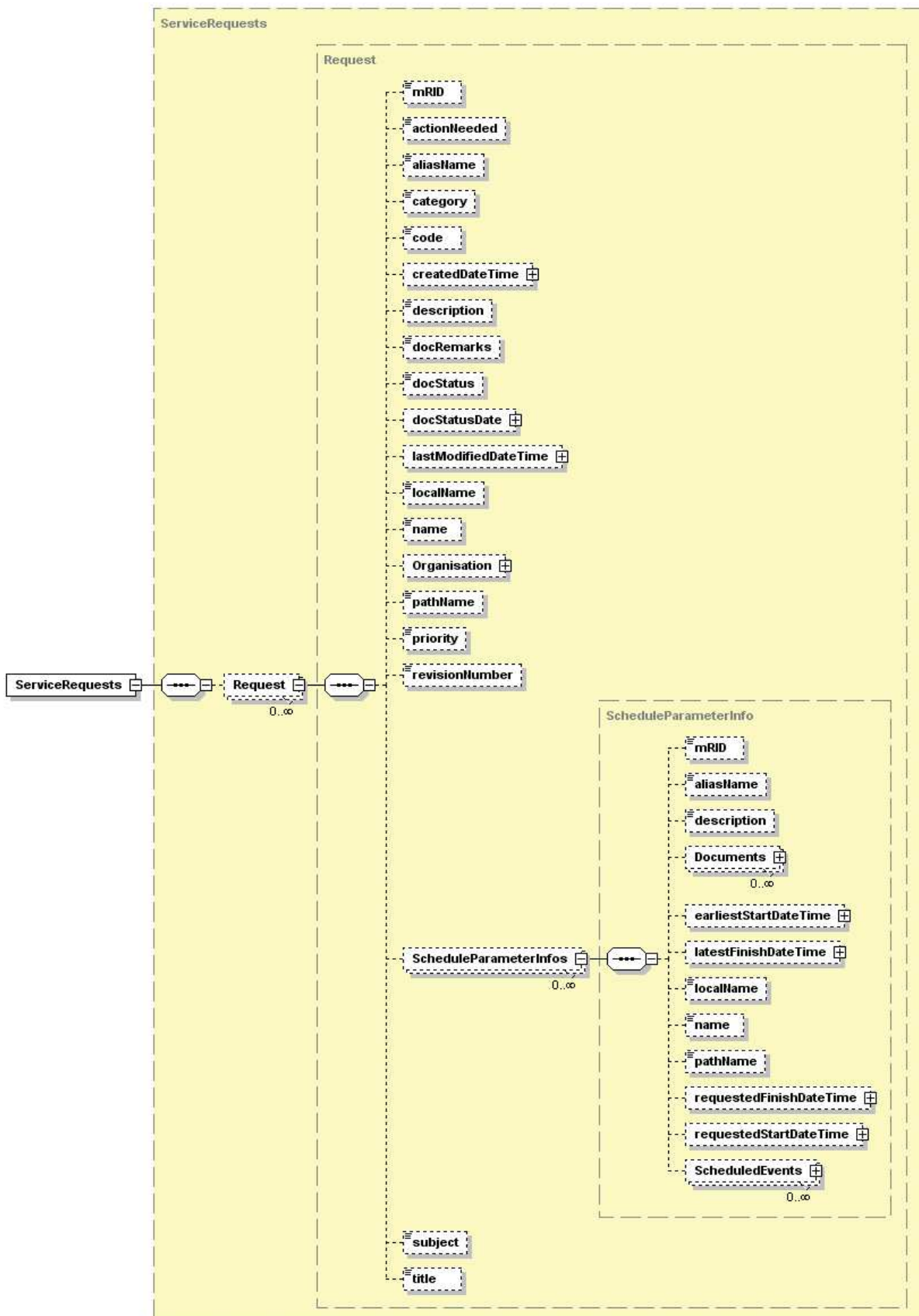


Figure 4.5.3 – Service Request Message Format: ScheduleParameterInfo

#### 4.6 Meter Service Order

Existing supply can be turned on or off by the customer or due to non-payment of bill. Also, a customer may initiate a change in service (or contracted rates) which would require their meter to be reconfigured or even replaced. Additionally, a customer may request other services such as a streetlight, a voltage check, meter verification, etc. The information from the initial customer contact allows utilities to determine the appropriate course of action to provide (or change) service.

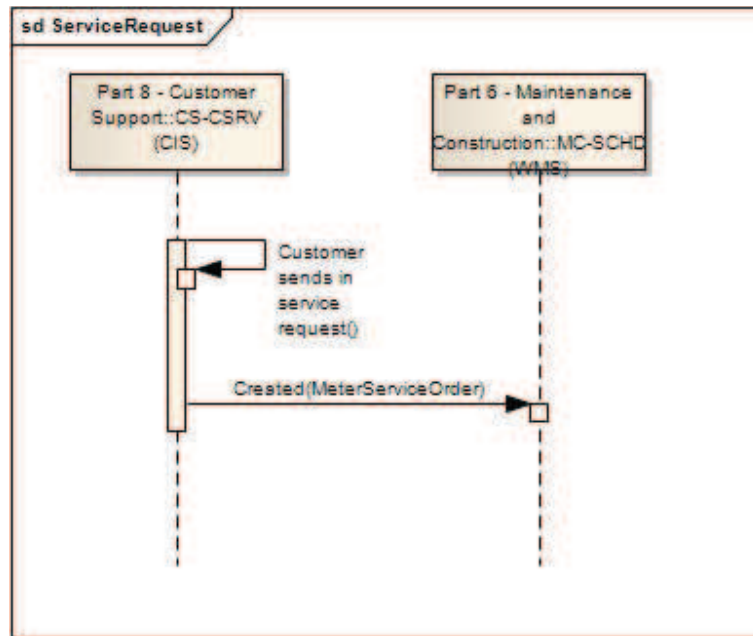
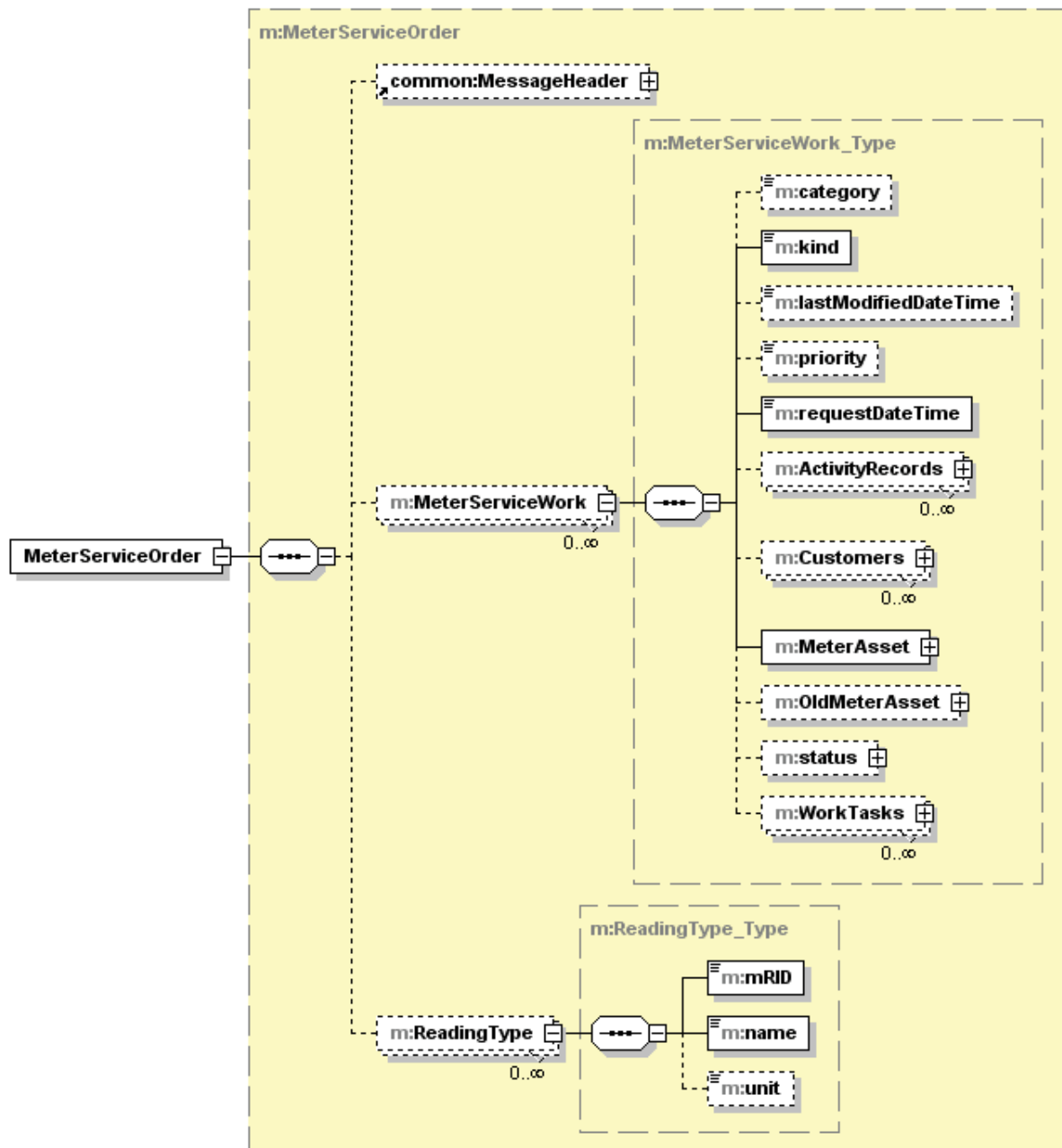


Figure 4.6: Meter Service Order

##### 4.6.1 Message Format

The MeterServiceOrder message consists of details surrounding the work that is to be completed including customer, asset, activity, task, and status information with respect to the meter. The format of the message is shown below in XSD.



Generated by XMLSpy

www.altova.com

Figure 4.6.1 – Meter Service Order Message Format

#### 4.7 Customer Agreement

The customer service agreement documents the terms and conditions between the utility and the customer for the provision of electricity. Not all utilities require a customer service agreement. However, utilities will assign the rate appropriate for the requested customer connection.

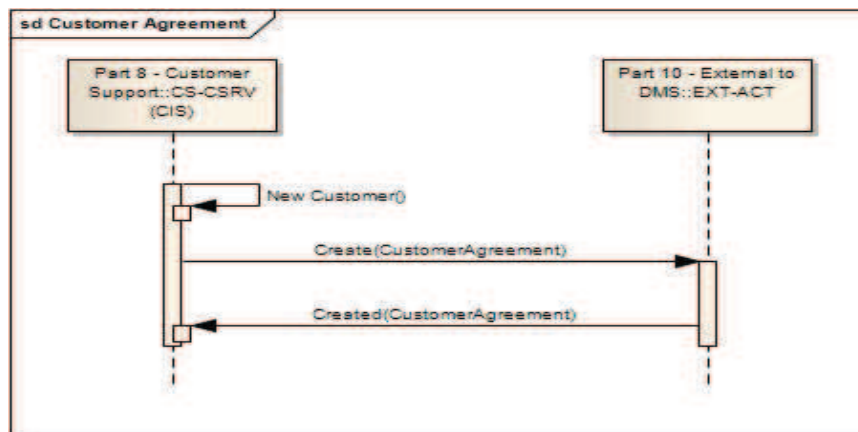


Figure 4.7: Customer Agreement

##### 4.7.1 Message Format

The CustomerAggreement message consists of customer information, details on the pricing structure and tarrif, and service supplier information. The format of the message is shown below in XSD.

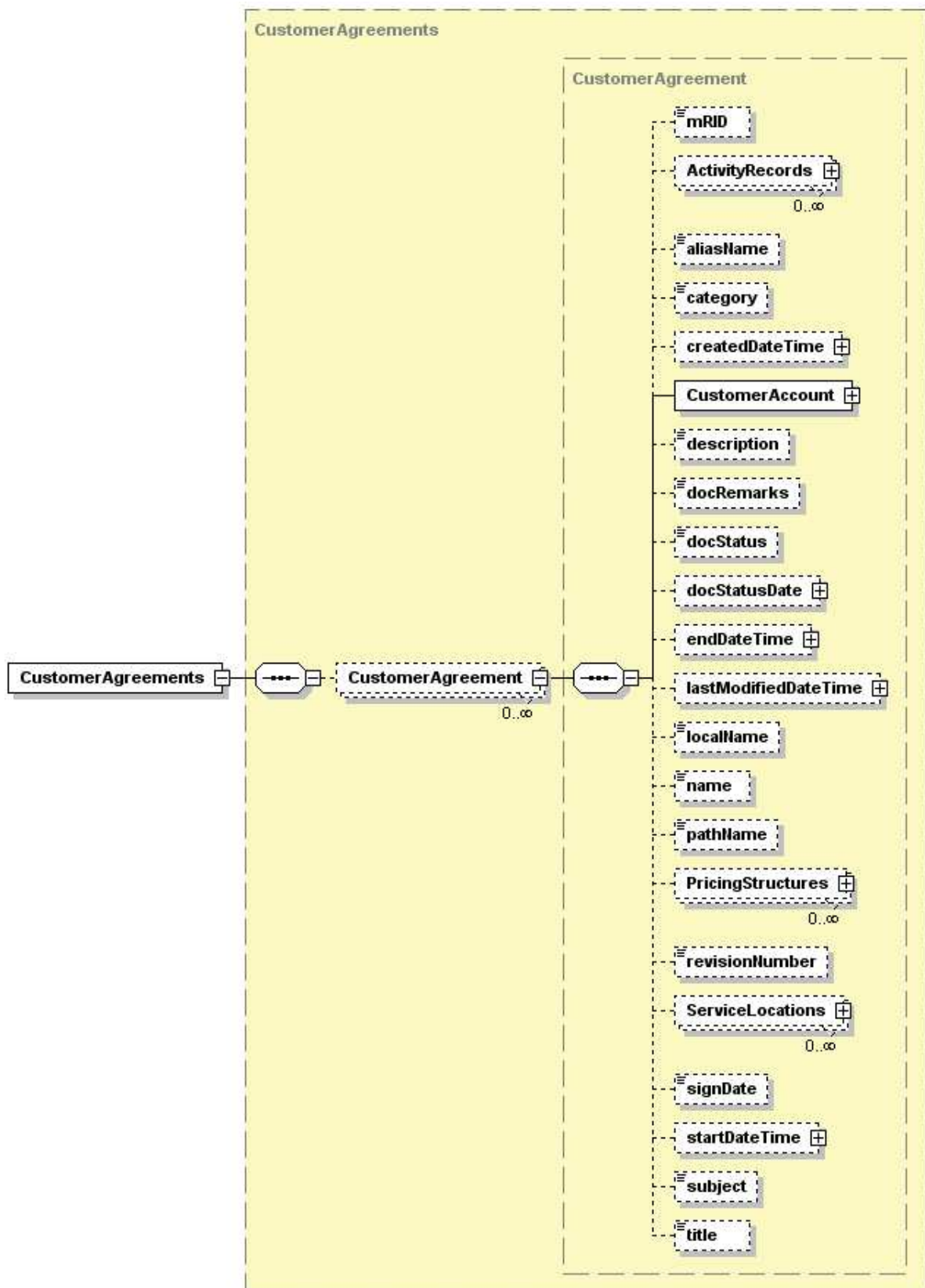


Figure 4.7.1 – Customer Service Agreement Message Format

#### 4.8 Billing Determinant

This is a scenario in which customer information system (CIS) requests MDMS for metering data to calculate a bill. The main information requested are interval readings, reading type, reading quality and etc. It is similar to Meter Reading message type.

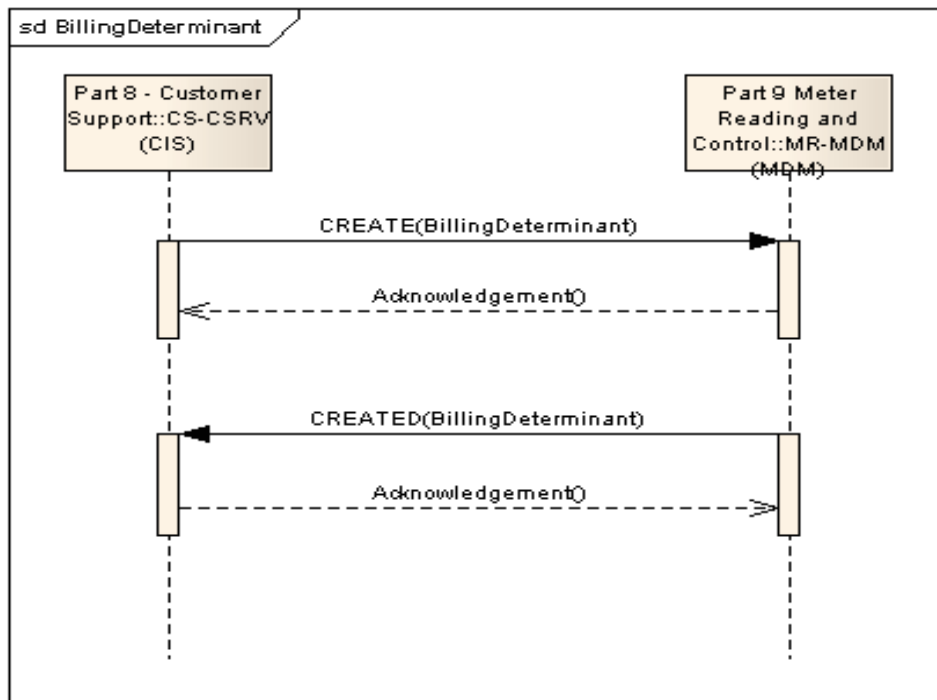


Figure 4.8 – Billing Determinant, Example 1 – Meter Read Request for Billing

##### 4.8.1 Message Format

Billing Determinant messages are implemented using BillDeterminant and MeterReading structures in CIM UML model. Major elements are BillDeterminant, MeterAsset, CustomerAccount, MeterReading, ServiceLocation and status. The Message in XSD is described in the figure below.

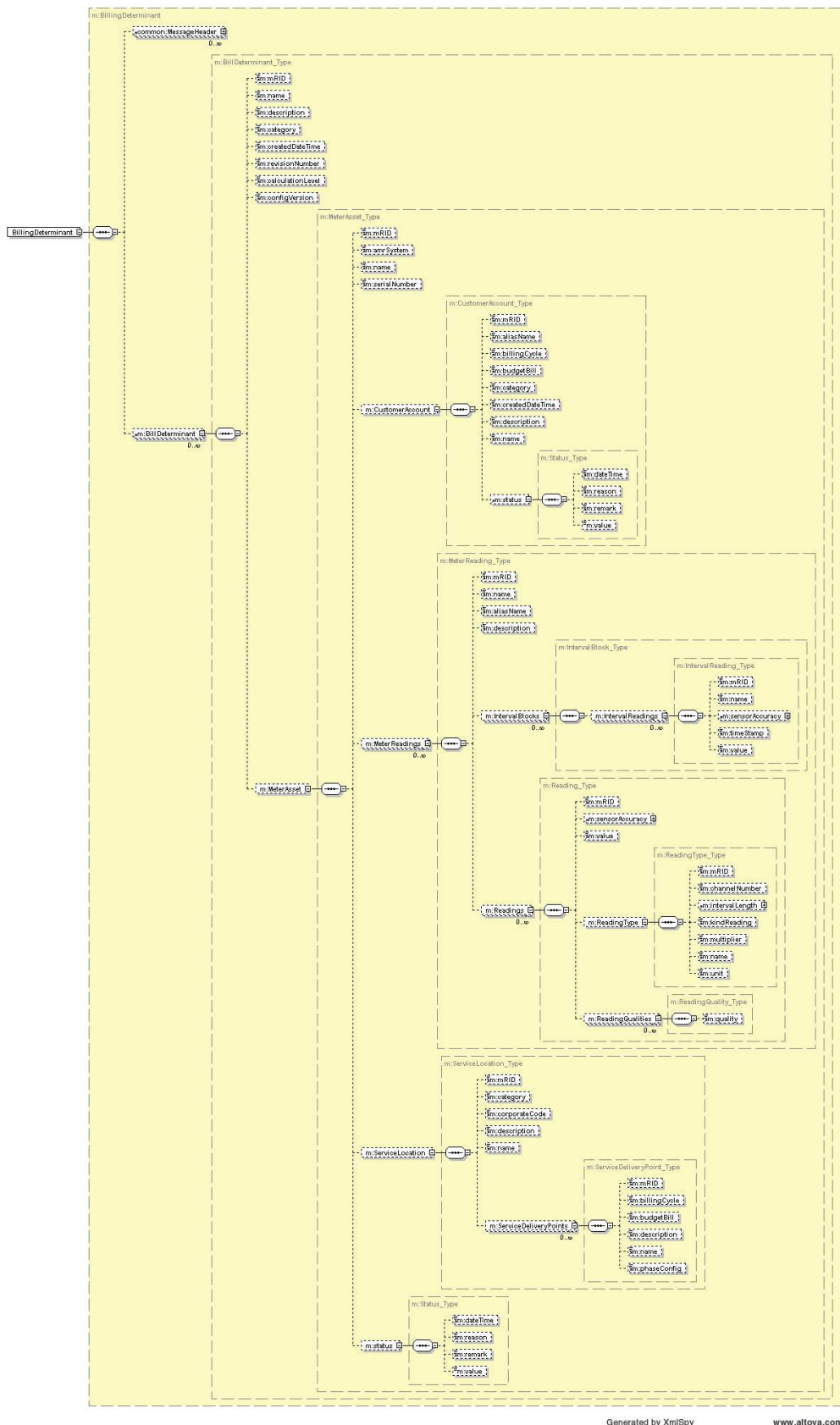


Figure 4.8.1 – Billing Determinant Message Format

**Annex A****XML Schemas for Message Payloads****A.1 Trouble Ticket**

```

<?xml version="1.0" encoding="utf-8"?>
<xs:schema xmlns:sawSDL="http://www.w3.org/ns/sawSDL"
  xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:cimp="http://www.iec.org/CimProfile"
  xmlns="http://iec.ch/TC57/2011/TroubleTicket#" xmlns:xten="http://iec.ch/TC57/2011/TroubleTicket#"
  xmlns:xm1="http://www.w3.org/XML/1998/namespace"
  targetNamespace="http://iec.ch/TC57/2011/TroubleTicket#" elementFormDefault="qualified"
  attributeFormDefault="unqualified" xml:base="http://iec.ch/TC57/2011/TroubleTicket#">
  <xs:element name="TroubleTickets" type="TroubleTickets"/>
  <xs:complexType name="TroubleTickets">
    <xs:sequence>
      <xs:element name="TroubleTicket" type="TroubleTicket" minOccurs="0"
maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="ActivityRecord" sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/ActivityRecord">
    <xs:annotation>
      <xs:documentation>Records activity for an entity at a point in time; activity may
be for an event that has already occurred or for a planned activity.</xs:documentation>
    </xs:annotation>
    <xs:sequence>
      <xs:element name="category" type="xs:string" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/ActivityRecord.category">
        <xs:annotation>
          <xs:documentation>Category of event resulting in this activity
record.</xs:documentation>
        </xs:annotation>
      </xs:element>
      <xs:element name="createdDateTime" type="DateTime" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/ActivityRecord.createdDateTime">
        <xs:annotation>
          <xs:documentation>Date and time this activity record has been
created (different from the 'status.dateTime', which is the time of a status change of the associated object,
if applicable).</xs:documentation>
        </xs:annotation>
      </xs:element>
      <xs:element name="Documents" type="TroubleTicket" minOccurs="0"
maxOccurs="unbounded" sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/ActivityRecord.Documents">
        <xs:annotation>
          <xs:documentation>All documents for which this activity record
has been created.</xs:documentation>
        </xs:annotation>
      </xs:element>
      <xs:element name="name" type="xs:string" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/ActivityRecord.name">

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        <xs:annotation>
          <xs:documentation>The name is any free human readable and
possibly non unique text naming the object.</xs:documentation>
        </xs:annotation>
      </xs:element>
      <xs:element name="reason" type="xs:string" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/ActivityRecord.reason">
        <xs:annotation>
          <xs:documentation>Reason for event resulting in this activity
record, typically supplied when user initiated.</xs:documentation>
        </xs:annotation>
      </xs:element>
      <xs:element name="severity" type="xs:string" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/ActivityRecord.severity">
        <xs:annotation>
          <xs:documentation>Severity level of event resulting in this
activity record.</xs:documentation>
        </xs:annotation>
      </xs:element>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="ElectronicAddress" sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/ElectronicAddress">
    <xs:annotation>
      <xs:documentation>Electronic address information.</xs:documentation>
      <xs:documentation xml:lang="en">
cimp:category="stereotype">Compound</xs:documentation>
    </xs:annotation>
    <xs:sequence>
      <xs:element name="email" type="xs:string" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/ElectronicAddress.email">
        <xs:annotation>
          <xs:documentation>Email address.</xs:documentation>
        </xs:annotation>
      </xs:element>
      <xs:element name="lan" type="xs:string" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/ElectronicAddress.lan">
        <xs:annotation>
          <xs:documentation>Address on local area
network.</xs:documentation>
        </xs:annotation>
      </xs:element>
      <xs:element name="password" type="xs:string" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/ElectronicAddress.password">
        <xs:annotation>
          <xs:documentation>Password needed to log
in.</xs:documentation>
        </xs:annotation>
      </xs:element>
    </xs:sequence>
  </xs:complexType>

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<xs:element name="radio" type="xs:string" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/ElectronicAddress.radio">
  <xs:annotation>
    <xs:documentation>Radio address.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="userID" type="xs:string" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/ElectronicAddress.userID">
  <xs:annotation>
    <xs:documentation>User ID needed to log in, which can be for an
individual person, an organisation, a location, etc.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="web" type="xs:string" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/ElectronicAddress.web">
  <xs:annotation>
    <xs:documentation>World wide web
address.</xs:documentation>
  </xs:annotation>
</xs:element>
</xs:sequence>
</xs:complexType>
<xs:complexType name="PostalAddress" sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/PostalAddress">
  <xs:annotation>
    <xs:documentation>General purpose postal address
information.</xs:documentation>
    <xs:documentation xml:lang="en"
cimp:category="stereotype">Compound</xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="poBox" type="xs:string" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/PostalAddress.poBox">
      <xs:annotation>
        <xs:documentation>Post office box.</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="postalCode" type="xs:string" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/PostalAddress.postalCode">
      <xs:annotation>
        <xs:documentation>Postal code for the
address.</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="streetDetail" type="StreetDetail" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/PostalAddress.streetDetail">
      <xs:annotation>

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        <xs:documentation>Street detail.</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="townDetail" type="TownDetail" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/PostalAddress.townDetail">
    <xs:annotation>
        <xs:documentation>Town detail.</xs:documentation>
    </xs:annotation>
</xs:element>
</xs:sequence>
</xs:complexType>
<xs:complexType name="Status" sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/Status">
    <xs:annotation>
        <xs:documentation>Current status information relevant to an
entity.</xs:documentation>
        <xs:documentation xml:lang="en"
cimp:category="stereotype">Compound</xs:documentation>
    </xs:annotation>
    <xs:sequence>
        <xs:element name="dateTime" type="DateTime" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/Status.dateTime">
            <xs:annotation>
                <xs:documentation>Date and time for which status 'value'
applies.</xs:documentation>
            </xs:annotation>
        </xs:element>
        <xs:element name="reason" type="xs:string" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/Status.reason">
            <xs:annotation>
                <xs:documentation>Reason code or explanation for why an
object went to the current status 'value'.</xs:documentation>
            </xs:annotation>
        </xs:element>
        <xs:element name="remark" type="xs:string" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/Status.remark">
            <xs:annotation>
                <xs:documentation>Pertinent information regarding the current
'value', as free form text.</xs:documentation>
            </xs:annotation>
        </xs:element>
        <xs:element name="value" type="xs:string" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/Status.value">
            <xs:annotation>
                <xs:documentation>Status value at 'dateTime'; prior status
changes may have been kept in instances of activity records associated with the object to which this
status applies.</xs:documentation>
            </xs:annotation>
        </xs:element>
    </xs:sequence>
</xs:complexType>

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    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="StreetAddress" sawsdl:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/StreetAddress">
    <xs:annotation>
      <xs:documentation>General purpose street address
information.</xs:documentation>
      <xs:documentation xml:lang="en"
cimp:category="stereotype">Compound</xs:documentation>
    </xs:annotation>
    <xs:sequence>
      <xs:element name="status" type="Status" minOccurs="0"
sawsdl:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/StreetAddress.status">
        <xs:annotation>
          <xs:documentation>Status of this address.</xs:documentation>
        </xs:annotation>
      </xs:element>
      <xs:element name="streetDetail" type="StreetDetail" minOccurs="0"
sawsdl:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/StreetAddress.streetDetail">
        <xs:annotation>
          <xs:documentation>Street detail.</xs:documentation>
        </xs:annotation>
      </xs:element>
      <xs:element name="townDetail" type="TownDetail" minOccurs="0"
sawsdl:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/StreetAddress.townDetail">
        <xs:annotation>
          <xs:documentation>Town detail.</xs:documentation>
        </xs:annotation>
      </xs:element>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="StreetDetail" sawsdl:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/StreetDetail">
    <xs:annotation>
      <xs:documentation>Street details, in the context of address.</xs:documentation>
      <xs:documentation xml:lang="en"
cimp:category="stereotype">Compound</xs:documentation>
    </xs:annotation>
    <xs:sequence>
      <xs:element name="addressGeneral" type="xs:string" minOccurs="0"
sawsdl:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/StreetDetail.addressGeneral">
        <xs:annotation>
          <xs:documentation>Additional address information, for example
a mailstop.</xs:documentation>
        </xs:annotation>
      </xs:element>
      <xs:element name="buildingName" type="xs:string" minOccurs="0"
sawsdl:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/StreetDetail.buildingName">

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        <xs:annotation>
            <xs:documentation>(if applicable) In certain cases the physical
location of the place of interest does not have a direct point of entry from the street, but may be located
inside a larger structure such as a building, complex, office block, apartment, etc.</xs:documentation>
        </xs:annotation>
    </xs:element>
    <xs:element name="code" type="xs:string" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/StreetDetail.code">
        <xs:annotation>
            <xs:documentation>(if applicable) Utilities often make use of
external reference systems, such as those of the town-planner's department or surveyor general's
mapping system, that allocate global reference codes to streets.</xs:documentation>
        </xs:annotation>
    </xs:element>
    <xs:element name="name" type="xs:string" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/StreetDetail.name">
        <xs:annotation>
            <xs:documentation>Name of the street.</xs:documentation>
        </xs:annotation>
    </xs:element>
    <xs:element name="number" type="xs:string" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/StreetDetail.number">
        <xs:annotation>
            <xs:documentation>Designator of the specific location on the
street.</xs:documentation>
        </xs:annotation>
    </xs:element>
    <xs:element name="prefix" type="xs:string" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/StreetDetail.prefix">
        <xs:annotation>
            <xs:documentation>Prefix to the street name. For example:
North, South, East, West.</xs:documentation>
        </xs:annotation>
    </xs:element>
    <xs:element name="suffix" type="xs:string" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/StreetDetail.suffix">
        <xs:annotation>
            <xs:documentation>Suffix to the street name. For example:
North, South, East, West.</xs:documentation>
        </xs:annotation>
    </xs:element>
    <xs:element name="suiteNumber" type="xs:string" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/StreetDetail.suiteNumber">
        <xs:annotation>
            <xs:documentation>Number of the apartment or
suite.</xs:documentation>
        </xs:annotation>
    </xs:element>

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<xs:element name="type" type="xs:string" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/StreetDetail.type">
  <xs:annotation>
    <xs:documentation>Type of street. Examples include: street,
circle, boulevard, avenue, road, drive, etc.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="withinTownLimits" type="xs:boolean" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/StreetDetail.withinTownLimits">
  <xs:annotation>
    <xs:documentation>True if this street is within the legal
geographical boundaries of the specified town (default).</xs:documentation>
  </xs:annotation>
</xs:element>
</xs:sequence>
</xs:complexType>
<xs:complexType name="PhoneNumber" sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/PhoneNumber">
  <xs:annotation>
    <xs:documentation>Telephone number.</xs:documentation>
    <xs:documentation xml:lang="en">
cimp:category="stereotype">Compound</xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="areaCode" type="xs:string" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/PhoneNumber.areaCode">
      <xs:annotation>
        <xs:documentation>Area or region code.</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="cityCode" type="xs:string" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/PhoneNumber.cityCode">
      <xs:annotation>
        <xs:documentation>(if applicable) City code.</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="countryCode" type="xs:string" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/PhoneNumber.countryCode">
      <xs:annotation>
        <xs:documentation>Country code.</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="extension" type="xs:string" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/PhoneNumber.extension">
      <xs:annotation>
        <xs:documentation>(if applicable) Extension for this telephone
number.</xs:documentation>

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        </xs:annotation>
      </xs:element>
      <xs:element name="localNumber" type="xs:string" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/TelephoneNumber.localNumber">
        <xs:annotation>
          <xs:documentation>Main (local) part of this telephone
number.</xs:documentation>
        </xs:annotation>
      </xs:element>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="TownDetail" sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/TownDetail">
    <xs:annotation>
      <xs:documentation>Town details, in the context of address.</xs:documentation>
      <xs:documentation xml:lang="en"
cimp:category="stereotype">Compound</xs:documentation>
    </xs:annotation>
    <xs:sequence>
      <xs:element name="code" type="xs:string" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/TownDetail.code">
        <xs:annotation>
          <xs:documentation>Town code.</xs:documentation>
        </xs:annotation>
      </xs:element>
      <xs:element name="country" type="xs:string" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/TownDetail.country">
        <xs:annotation>
          <xs:documentation>Name of the country.</xs:documentation>
        </xs:annotation>
      </xs:element>
      <xs:element name="name" type="xs:string" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/TownDetail.name">
        <xs:annotation>
          <xs:documentation>Town name.</xs:documentation>
        </xs:annotation>
      </xs:element>
      <xs:element name="section" type="xs:string" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/TownDetail.section">
        <xs:annotation>
          <xs:documentation>Town section. For example, it is common for
there to be 36 sections per township.</xs:documentation>
        </xs:annotation>
      </xs:element>
      <xs:element name="stateOrProvince" type="xs:string" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Common/TownDetail.stateOrProvince">
        <xs:annotation>

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        <xs:documentation>Name of the state or
province.</xs:documentation>
    </xs:annotation>
</xs:element>
</xs:sequence>
</xs:complexType>
<xs:complexType name="Customer" sawsdl:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Customers/Customer">
    <xs:annotation>
        <xs:documentation>Organisation receiving services from
ServiceSupplier.</xs:documentation>
    </xs:annotation>
    <xs:sequence>
        <xs:element name="electronicAddress" type="ElectronicAddress" minOccurs="0"
sawsdl:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Customers/Customer.electronicAddress">
            <xs:annotation>
                <xs:documentation>Electronic address.</xs:documentation>
            </xs:annotation>
        </xs:element>
        <xs:element name="kind" type="CustomerKind" minOccurs="0"
sawsdl:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Customers/Customer.kind">
            <xs:annotation>
                <xs:documentation>Kind of customer.</xs:documentation>
            </xs:annotation>
        </xs:element>
        <xs:element name="name" type="xs:string" minOccurs="0"
sawsdl:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Customers/Customer.name">
            <xs:annotation>
                <xs:documentation>The name is any free human readable and
possibly non unique text naming the object.</xs:documentation>
            </xs:annotation>
        </xs:element>
        <xs:element name="phone1" type="TelephoneNumber" minOccurs="0"
sawsdl:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Customers/Customer.phone1">
            <xs:annotation>
                <xs:documentation>Phone number.</xs:documentation>
            </xs:annotation>
        </xs:element>
        <xs:element name="phone2" type="TelephoneNumber" minOccurs="0"
sawsdl:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Customers/Customer.phone2">
            <xs:annotation>
                <xs:documentation>Additional phone
number.</xs:documentation>
            </xs:annotation>
        </xs:element>
        <xs:element name="postalAddress" type="PostalAddress" minOccurs="0"
sawsdl:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Customers/Customer.postalAddress">

```

```

        <xs:annotation>
          <xs:documentation>Postal address, potentially different than
'streetAddress' (e.g., another city).</xs:documentation>
        </xs:annotation>
      </xs:element>
      <xs:element name="pucNumber" type="xs:string" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Customers/Customer.pucNumber">
        <xs:annotation>
          <xs:documentation>(if applicable) Public utility commission
(PUC) identification number.</xs:documentation>
        </xs:annotation>
      </xs:element>
      <xs:element name="specialNeed" type="xs:string" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Customers/Customer.specialNeed">
        <xs:annotation>
          <xs:documentation>True if customer organisation has special
service needs such as life support, hospitals, etc.</xs:documentation>
        </xs:annotation>
      </xs:element>
      <xs:element name="status" type="Status" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Customers/Customer.status">
        <xs:annotation>
          <xs:documentation>Status of this customer.</xs:documentation>
        </xs:annotation>
      </xs:element>
      <xs:element name="streetAddress" type="StreetAddress" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Customers/Customer.streetAddress">
        <xs:annotation>
          <xs:documentation>Street address.</xs:documentation>
        </xs:annotation>
      </xs:element>
      <xs:element name="TroubleTickets" type="TroubleTicket" minOccurs="0"
maxOccurs="unbounded" sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Customers/Customer.TroubleTickets">
        <xs:annotation>
          <xs:documentation xml:lang="en"
cimp:category="stereotype">informative</xs:documentation>
        </xs:annotation>
      </xs:element>
      <xs:element name="vip" type="xs:boolean" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Customers/Customer.vip">
        <xs:annotation>
          <xs:documentation>True if this is an important customer.
Importance is for matters different than those in 'specialNeed' attribute.</xs:documentation>
        </xs:annotation>
      </xs:element>
    </xs:sequence>
  </xs:complexType>

```

```

<xs:simpleType name="CustomerKind" sawsdl:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Customers/CustomerKind">
  <xs:annotation>
    <xs:documentation>Kind of customer.</xs:documentation>
    <xs:documentation xml:lang="en"
cimp:category="stereotype">enumeration</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:string">
    <xs:enumeration value="residential"
sawsdl:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Customers/CustomerKind">
    <xs:annotation>
      <xs:documentation xml:lang="en"
cimp:category="stereotype">enum</xs:documentation>
    </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="residentialAndCommercial"
sawsdl:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Customers/CustomerKind">
    <xs:annotation>
      <xs:documentation xml:lang="en"
cimp:category="stereotype">enum</xs:documentation>
    </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="residentialAndStreetlight"
sawsdl:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Customers/CustomerKind">
    <xs:annotation>
      <xs:documentation xml:lang="en"
cimp:category="stereotype">enum</xs:documentation>
    </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="residentialStreetlightOthers"
sawsdl:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Customers/CustomerKind">
    <xs:annotation>
      <xs:documentation xml:lang="en"
cimp:category="stereotype">enum</xs:documentation>
    </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="residentialFarmService"
sawsdl:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Customers/CustomerKind">
    <xs:annotation>
      <xs:documentation xml:lang="en"
cimp:category="stereotype">enum</xs:documentation>
    </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="commercialIndustrial"
sawsdl:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Customers/CustomerKind">
    <xs:annotation>

```

```

                                <xs:documentation xml:lang="en"
cimp:category="stereotype">enum</xs:documentation>
                                </xs:annotation>
                                </xs:enumeration>
                                <xs:enumeration value="pumpingLoad"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Customers/CustomerKind">
                                <xs:annotation>
                                <xs:documentation xml:lang="en"
cimp:category="stereotype">enum</xs:documentation>
                                </xs:annotation>
                                </xs:enumeration>
                                <xs:enumeration value="windMachine"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Customers/CustomerKind">
                                <xs:annotation>
                                <xs:documentation xml:lang="en"
cimp:category="stereotype">enum</xs:documentation>
                                </xs:annotation>
                                </xs:enumeration>
                                <xs:enumeration value="energyServiceSupplier"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Customers/CustomerKind">
                                <xs:annotation>
                                <xs:documentation xml:lang="en"
cimp:category="stereotype">enum</xs:documentation>
                                </xs:annotation>
                                </xs:enumeration>
                                <xs:enumeration value="energyServiceScheduler"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Customers/CustomerKind">
                                <xs:annotation>
                                <xs:documentation xml:lang="en"
cimp:category="stereotype">enum</xs:documentation>
                                </xs:annotation>
                                </xs:enumeration>
                                <xs:enumeration value="internalUse"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Customers/CustomerKind">
                                <xs:annotation>
                                <xs:documentation xml:lang="en"
cimp:category="stereotype">enum</xs:documentation>
                                </xs:annotation>
                                </xs:enumeration>
                                <xs:enumeration value="other" sawSDL:modelReference="http://www.xtensible-
shu-l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Customers/CustomerKind">
                                <xs:annotation>
                                <xs:documentation xml:lang="en"
cimp:category="stereotype">enum</xs:documentation>
                                </xs:annotation>
                                </xs:enumeration>
                                </xs:restriction>
</xs:simpleType>

```

```
<xs:complexType name="CallBack" sawsdl:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Informative/InfOperations/CallBack">
```

```
<xs:annotation>
```

```
<xs:documentation>Information about a planned CallBack or a CallBack that has
occurred, from the utility to a customer regarding the status and plans about resolving trouble, performing
work, etc.</xs:documentation>
```

```
</xs:annotation>
```

```
<xs:sequence>
```

```
<xs:element name="advice" type="xs:string" minOccurs="0"
```

```
sawsdl:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Informative/InfOperations/CallBack.advice">
```

```
<xs:annotation>
```

```
<xs:documentation>Advice already given to the customer during
this call back.</xs:documentation>
```

```
</xs:annotation>
```

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

```
<xs:element name="comment" type="xs:string" minOccurs="0"
```

```
sawsdl:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Informative/InfOperations/CallBack.comment">
```

```
<xs:annotation>
```

```
<xs:documentation>Comments by customer during this call
back.</xs:documentation>
```

```
</xs:annotation>
```

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

```
<xs:element name="contactDetail" type="xs:string" minOccurs="0"
```

```
sawsdl:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Informative/InfOperations/CallBack.contactDetail">
```

```
<xs:annotation>
```

```
<xs:documentation>Additional contact details that are not
provided for ErpPerson with ErpTelephoneNumber.</xs:documentation>
```

```
</xs:annotation>
```

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

```
<xs:element name="dateTime" type="DateTime" minOccurs="0"
```

```
sawsdl:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Informative/InfOperations/CallBack.dateTime">
```

```
<xs:annotation>
```

```
<xs:documentation>(if callback already occurred) Date and time
when this call back occurred.</xs:documentation>
```

```
</xs:annotation>
```

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

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

```
sawsdl:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Informative/InfOperations/CallBack.name">
```

```
<xs:annotation>
```

```
<xs:documentation>The name is any free human readable and
possibly non unique text naming the object.</xs:documentation>
```

```
</xs:annotation>
```

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

```
<xs:element name="problemInfo" type="xs:string" minOccurs="0"
```

```
sawsdl:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Informative/InfOperations/CallBack.problemInfo">
```

```
<xs:annotation>
```

```

        <xs:documentation>Description of the problem reported during
this call back.</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="TroubleTickets" type="TroubleTicket" minOccurs="0"
maxOccurs="unbounded" sawsdl:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Informative/InfOperations/CallBack.TroubleTickets">
    <xs:annotation>
        <xs:documentation xml:lang="en"
cimp:category="stereotype">informative</xs:documentation>
    </xs:annotation>
</xs:element>
</xs:sequence>
</xs:complexType>
<xs:complexType name="IncidentRecord" sawsdl:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Informative/InfOperations/IncidentRecord">
    <xs:annotation>
        <xs:documentation>Document describing the incident reported in a
TroubleTicket. If the incident has to do with an outage, this will be associated with an OutageRecord.
Primary cause of the incident is captured in 'category'.</xs:documentation>
    </xs:annotation>
<xs:sequence>
    <xs:element name="category" type="xs:string" minOccurs="0"
sawsdl:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Informative/InfOperations/IncidentRecord.category">
        <xs:annotation>
            <xs:documentation>Utility-specific categorisation of this
document, according to their corporate standards, practices, and existing IT systems (e.g., for
management of assets, maintenance, work, outage, customers, etc.).</xs:documentation>
        </xs:annotation>
    </xs:element>
    <xs:element name="createdDateTime" type="DateTime" minOccurs="0"
sawsdl:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Informative/InfOperations/IncidentRecord.createdDateTime">
        <xs:annotation>
            <xs:documentation>Date and time that this document was
created.</xs:documentation>
        </xs:annotation>
    </xs:element>
    <xs:element name="lastModifiedDateTime" type="DateTime" minOccurs="0"
sawsdl:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Informative/InfOperations/IncidentRecord.lastModifiedDateTime">
        <xs:annotation>
            <xs:documentation>Date and time this document was last
modified. Documents may potentially be modified many times during their lifetime.</xs:documentation>
        </xs:annotation>
    </xs:element>
    <xs:element name="name" type="xs:string" minOccurs="0"
sawsdl:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Informative/InfOperations/IncidentRecord.name">
        <xs:annotation>
            <xs:documentation>The name is any free human readable and
possibly non unique text naming the object.</xs:documentation>
        </xs:annotation>
    </xs:element>
</xs:sequence>
</xs:complexType>

```

```

</xs:element>
<xs:element name="period" type="DateTimeInterval" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Informative/InfOperations/IncidentRecord.period">
<xs:annotation>
<xs:documentation>Period between the first customer impacted
by the incident and the incident resolution for all customers impacted.</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="status" type="Status" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Informative/InfOperations/IncidentRecord.status">
<xs:annotation>
<xs:documentation>Status of subject matter (e.g., Agreement,
Work) this document represents. For status of the document itself, use 'docStatus'
attribute.</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="TroubleTickets" type="TroubleTicket"
maxOccurs="unbounded" sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Informative/InfOperations/IncidentRecord.TroubleTickets">
<xs:annotation>
<xs:documentation xml:lang="en"
cimp:category="stereotype">informative</xs:documentation>
</xs:annotation>
</xs:element>
</xs:sequence>
</xs:complexType>
<xs:simpleType name="TroubleReportingKind" sawSDL:modelReference="http://www.xtensible-
shu-l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Informative/InfOperations/TroubleReportingKind">
<xs:annotation>
<xs:documentation>Kind of trouble reporting.</xs:documentation>
<xs:documentation xml:lang="en"
cimp:category="stereotype">enumeration</xs:documentation>
</xs:annotation>
<xs:restriction base="xs:string">
<xs:enumeration value="call" sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Informative/InfOperations/TroubleReportingKind">
<xs:annotation>
<xs:documentation xml:lang="en"
cimp:category="stereotype">enum</xs:documentation>
</xs:annotation>
</xs:enumeration>
<xs:enumeration value="email" sawSDL:modelReference="http://www.xtensible-
shu-l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Informative/InfOperations/TroubleReportingKind">
<xs:annotation>
<xs:documentation xml:lang="en"
cimp:category="stereotype">enum</xs:documentation>
</xs:annotation>
</xs:enumeration>
<xs:enumeration value="letter" sawSDL:modelReference="http://www.xtensible-
shu-l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Informative/InfOperations/TroubleReportingKind">
<xs:annotation>

```

```

<xs:documentation xml:lang="en"
cimp:category="stereotype">enum</xs:documentation>
</xs:annotation>
</xs:enumeration>
<xs:enumeration value="other" sawsdl:modelReference="http://www.xtensible-
shu-l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Informative/InfOperations/TroubleReportingKind">
</xs:annotation>
<xs:documentation xml:lang="en"
cimp:category="stereotype">enum</xs:documentation>
</xs:annotation>
</xs:enumeration>
</xs:restriction>
</xs:simpleType>
<xs:complexType name="TroubleTicket" sawsdl:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Informative/InfOperations/TroubleTicket">
<xs:annotation>
<xs:documentation>A document used to report electrical trouble. The trouble may
either be an outage or non-outage problem, such as power quality. It must always be associated with an
incident record.
Note that a separate activity record is created for each call associated with an instance of trouble ticket.
The time of a call is stored in 'ActivityRecord.createdOn' and comments are recorded in
'ActivityRecord.remarks'.</xs:documentation>
</xs:annotation>
<xs:sequence>
<xs:element name="mRID" type="xs:string"
sawsdl:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Informative/InfOperations/TroubleTicket.mRID">
<xs:annotation>
<xs:documentation>A Model Authority issues mRIDs. Given that
each Model Authority has a unique id and this id is part of the mRID, then the mRID is globally unique.
Global uniqueness is easily achieved by using a UUID for the mRID. It is strongly recommended to do this.
For CIMXML data files the mRID is mapped to rdf:ID or rdf:about attributes that identifies CIM object
elements.</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="ActivityRecords" type="ActivityRecord" minOccurs="0"
maxOccurs="unbounded" sawsdl:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Informative/InfOperations/TroubleTicket.ActivityRecords">
<xs:annotation>
<xs:documentation>All activity records created for this
document.</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="advice" type="xs:string" minOccurs="0"
sawsdl:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Informative/InfOperations/TroubleTicket.advice">
<xs:annotation>
<xs:documentation>True if advice already given to the customer
at time when trouble was first reported.</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="callBack" type="xs:boolean" minOccurs="0"
sawsdl:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Informative/InfOperations/TroubleTicket.callBack">

```

```

<xs:annotation>
  <xs:documentation>True if requested to customer when
someone is about to arrive at their premises.</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="CallBacks" type="CallBack" minOccurs="0"
maxOccurs="unbounded" sawsdl:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Informative/InfOperations/TroubleTicket.CallBacks">
  <xs:annotation>
    <xs:documentation xml:lang="en"
cimp:category="stereotype">informative</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="category" type="xs:string" minOccurs="0"
sawsdl:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Informative/InfOperations/TroubleTicket.category">
  <xs:annotation>
    <xs:documentation>Utility-specific categorisation of this
document, according to their corporate standards, practices, and existing IT systems (e.g., for
management of assets, maintenance, work, outage, customers, etc.).</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="createdDateTime" type="DateTime" minOccurs="0"
sawsdl:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Informative/InfOperations/TroubleTicket.createdDateTime">
  <xs:annotation>
    <xs:documentation>Date and time that this document was
created.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="CustomerData" type="Customer" minOccurs="0"
sawsdl:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Informative/InfOperations/TroubleTicket.CustomerData">
  <xs:annotation>
    <xs:documentation xml:lang="en"
cimp:category="stereotype">informative</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="electronicAddress" type="ElectronicAddress" minOccurs="0"
sawsdl:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Informative/InfOperations/TroubleTicket.electronicAddress">
  <xs:annotation>
    <xs:documentation>Electronic address.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="estimatedRestoreDateTime" type="DateTime"
minOccurs="0" sawsdl:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Informative/InfOperations/TroubleTicket.estimatedRestoreDateTime">
  <xs:annotation>
    <xs:documentation>Estimated restoration date and time last
provided to the customer.</xs:documentation>
  </xs:annotation>
</xs:element>

```

```

<xs:element name="firstCallDateTime" type="DateTime" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Informative/InfOperations/TroubleTicket.firstCallDateTime">
  <xs:annotation>
    <xs:documentation>Date and time trouble call first received. The
date and time of subsequent calls by the same customer for the same trouble are recorded in associated
Activity Records.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="hazardCode" type="xs:string" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Informative/InfOperations/TroubleTicket.hazardCode">
  <xs:annotation>
    <xs:documentation>Code for a reported hazard
condition.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="IncidentRecord" type="IncidentRecord"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Informative/InfOperations/TroubleTicket.IncidentRecord">
  <xs:annotation>
    <xs:documentation xml:lang="en"
cimp:category="stereotype">informative</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="informAfterRestored" type="xs:boolean" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Informative/InfOperations/TroubleTicket.informAfterRestored">
  <xs:annotation>
    <xs:documentation>True if person reporting trouble requested a
call back to confirm power has been restored. The person and their contact information is maintained in
the associated Customer information. Call back results are recorded in associated
'ActivityRecord.Status.remarks'.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="informBeforeRestored" type="xs:boolean" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Informative/InfOperations/TroubleTicket.informBeforeRestored">
  <xs:annotation>
    <xs:documentation>True if person reporting trouble requested a
call back when significant information became available about cause of the outage and the estimated
restoration time. The person and their contact information are maintained in the associated Customer
information. Call back results are recorded in associated
'ActivityRecord.Status.remarks'.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="lastModifiedDateTime" type="DateTime" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Informative/InfOperations/TroubleTicket.lastModifiedDateTime">
  <xs:annotation>
    <xs:documentation>Date and time this document was last
modified. Documents may potentially be modified many times during their lifetime.</xs:documentation>
  </xs:annotation>
</xs:element>

```

```

    <xs:element name="name" type="xs:string" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Informative/InfOperations/TroubleTicket.name">
    <xs:annotation>
    <xs:documentation>The name is any free human readable and
possibly non unique text naming the object.</xs:documentation>
    </xs:annotation>
    </xs:element>
    <xs:element name="priority" type="xs:string" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Informative/InfOperations/TroubleTicket.priority">
    <xs:annotation>
    <xs:documentation>Priority of trouble call.</xs:documentation>
    </xs:annotation>
    </xs:element>
    <xs:element name="reportingKind" type="TroubleReportingKind" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Informative/InfOperations/TroubleTicket.reportingKind">
    <xs:annotation>
    <xs:documentation>Means the customer used to report trouble
(default is 'call').</xs:documentation>
    </xs:annotation>
    </xs:element>
    <xs:element name="revisionNumber" type="xs:string" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Informative/InfOperations/TroubleTicket.revisionNumber">
    <xs:annotation>
    <xs:documentation>Revision number for this
document.</xs:documentation>
    </xs:annotation>
    </xs:element>
    <xs:element name="status" type="Status" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Informative/InfOperations/TroubleTicket.status">
    <xs:annotation>
    <xs:documentation>Status of subject matter (e.g., Agreement,
Work) this document represents. For status of the document itself, use 'docStatus'
attribute.</xs:documentation>
    </xs:annotation>
    </xs:element>
    <xs:element name="troublePeriod" type="DateTimeInterval" minOccurs="0"
sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61968/Informative/InfOperations/TroubleTicket.troublePeriod">
    <xs:annotation>
    <xs:documentation>Period between this source of trouble started
and was resolved.</xs:documentation>
    </xs:annotation>
    </xs:element>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="DateTime" sawSDL:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61970/Domain/DateTime">
  <xs:annotation>

```

<xs:documentation>Date and time as "yyyy-mm-ddThh:mm:ss.sss", which conforms with ISO 8601. UTC time zone is specified as "yyyy-mm-ddThh:mm:ss.sssZ". A local timezone relative UTC is specified as "yyyy-mm-ddThh:mm:ss.sss-hh:mm". AbsoluteDateTime can be used both for calendar time, e.g. 2007-02-07T10:30, and for relative time, e.g. 10:30.

Date and time as "yyyy-mm-ddThh:mm:ss.sss", which conforms with ISO 8601. UTC time zone is specified as "yyyy-mm-ddThh:mm:ss.sssZ". A local timezone relative UTC is specified as "yyyy-mm-ddThh:mm:ss.sss-hh:mm". AbsoluteDateTime can be used both for calendar time, e.g. 2007-02-07T10:30, and for relative time, e.g. 10:30.</xs:documentation>

```

        <xs:documentation xml:lang="en"
cimp:category="stereotype">Primitive</xs:documentation>
        </xs:annotation>
        <xs:sequence/>
    </xs:complexType>
    <xs:complexType name="DateTimeInterval" sawsdl:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61970/Domain/DateTimeInterval">
        <xs:annotation>
            <xs:documentation>Interval of date and time.</xs:documentation>
            <xs:documentation xml:lang="en"
cimp:category="stereotype">Compound</xs:documentation>
            </xs:annotation>
            <xs:sequence>
                <xs:element name="end" type="DateTime" minOccurs="0"
sawsdl:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61970/Domain/DateTimeInterval.end">
                    <xs:annotation>
                        <xs:documentation>Date and time that this interval
ended.</xs:documentation>
                    </xs:annotation>
                </xs:element>
                <xs:element name="start" type="DateTime" minOccurs="0"
sawsdl:modelReference="http://www.xtensible-shu-
l.net/2011/cim/ea/iec61970cim15v13_iec61968cim11v05_iec62325cim00v00.eap#CIM Profiles/Part-
8/TroubleTicket/IEC61970/Domain/DateTimeInterval.start">
                    <xs:annotation>
                        <xs:documentation>Date and time that this interval
started.</xs:documentation>
                    </xs:annotation>
                </xs:element>
            </xs:sequence>
        </xs:complexType>
    </xs:schema>

```

## A.2 Call Back

```

<?xml version="1.0" encoding="utf-8"?>
<!-- edited with XMLSpy v2009 sp1 (http://www.altova.com) by monte (Xtensible Solutions) -->
<xs:schema xmlns:sawsdl="http://www.w3.org/ns/sawsdl"
xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:cimp="http://www.iec.org/CimProfile"
xmlns="http://iec.ch/TC57/2011/CallBack#" xmlns:m="http://iec.ch/TC57/2011/CallBack#"
xmlns:xml="http://www.w3.org/XML/1998/namespace"
targetNamespace="http://iec.ch/TC57/2011/CallBack#" elementFormDefault="qualified"
attributeFormDefault="unqualified" xml:base="http://iec.ch/TC57/2011/CallBack#">

```

```

<xs:element name="Callbacks" type="Callbacks"/>
<xs:complexType name="Callbacks">
  <xs:sequence>
    <xs:element name="Callback" type="Callback" minOccurs="0"
maxOccurs="unbounded"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="ScheduleParameterInfo"
sawSDL:modelReference="http://www.xtensible.net/2011/cim/ea/iec61970cim13v18_iec61968cim10v16_co
mbined.eap#CIM Profiles/Part 8 Customer
Support/Callbacks/IEC61968/Common/ScheduleParameterInfo">
  <xs:annotation>
    <xs:documentation>Schedule parameters for an activity that is to occur, is
occurring, or has completed.</xs:documentation>
    <xs:documentation xml:lang="en" cimp:category="TagValue"
cimp:subCategory="persistence" cimp:notes="">persistence</xs:documentation>
    <xs:documentation xml:lang="en" cimp:category="TagValue"
cimp:subCategory="rose_uuid" cimp:notes="">rose_uuid</xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="mRID" type="xs:string" minOccurs="0"
sawSDL:modelReference="http://www.xtensible.net/2011/cim/ea/iec61970cim13v18_iec61968cim10v16_co
mbined.eap#CIM Profiles/Part 8 Customer
Support/Callbacks/IEC61968/Common/ScheduleParameterInfo.mRID">
      <xs:annotation>
        <xs:documentation>A Model Authority issues mRIDs. Given that
each Model Authority has a unique id and this id is part of the mRID, then the mRID is globally
unique.</xs:documentation>
        <xs:documentation xml:lang="en" cimp:category="TagValue"
cimp:subCategory="rose_uuid" cimp:notes="">rose_uuid</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="aliasName" type="xs:string" minOccurs="0"
sawSDL:modelReference="http://www.xtensible.net/2011/cim/ea/iec61970cim13v18_iec61968cim10v16_co
mbined.eap#CIM Profiles/Part 8 Customer
Support/Callbacks/IEC61968/Common/ScheduleParameterInfo.aliasName">
      <xs:annotation>
        <xs:documentation>The aliasName is free text human readable
name of the object alternative to IdentifiedObject.name. It may be non unique and may not correlate to a
naming hierarchy.</xs:documentation>
        <xs:documentation xml:lang="en" cimp:category="TagValue"
cimp:subCategory="RationalRose$Cim:NercProfile"
cimp:notes="">RationalRose$Cim:NercProfile</xs:documentation>
        <xs:documentation xml:lang="en" cimp:category="TagValue"
cimp:subCategory="rose_uuid" cimp:notes="">rose_uuid</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="description" type="xs:string" minOccurs="0"
sawSDL:modelReference="http://www.xtensible.net/2011/cim/ea/iec61970cim13v18_iec61968cim10v16_co
mbined.eap#CIM Profiles/Part 8 Customer
Support/Callbacks/IEC61968/Common/ScheduleParameterInfo.description">
      <xs:annotation>
        <xs:documentation>The description is a free human readable
text describing or naming the object. It may be non unique and may not correlate to a naming
hierarchy.</xs:documentation>
        <xs:documentation xml:lang="en" cimp:category="TagValue"
cimp:subCategory="RationalRose$Cim:NercProfile"
cimp:notes="">RationalRose$Cim:NercProfile</xs:documentation>
        <xs:documentation xml:lang="en" cimp:category="TagValue"
cimp:subCategory="rose_uuid" cimp:notes="">rose_uuid</xs:documentation>
      </xs:annotation>
    </xs:element>
  </xs:sequence>
</xs:complexType>

```