

eCall 112

INTERFAȚA TPSP - PSAP 112

Termeni și abrevieri:

- IVS = In-Vehicle System
- MSD = Minimum Set of Data (EN 15722)
- CAP 1.2 = Common Alerting Protocol ver. 1.2
- TPS = Third Party Service
- TPSP = Third Party Service Provider (Centru de asistență rutieră)
- PSAP 112 = Public Safety Answering Point 112
- Call clear-down = funcționalitate eCall (EN16102)
- Callback = funcționalitate eCall (EN16102 - se poate utiliza la un interval de maxim 60 min. de la inițierea apelului eCall)
- PBX = Private Branch eXchange
- TSD = TPS-eCall Set of Data
- VIN = Vehicle Identification Number
- eCall = emergency Call = serviciu care permite apelarea serviciului de urgență 112, de pe un dispozitiv tip IVS, prin declanșare manuală sau automată folosind senzori

Bibliografie:

- ETSI - EN 15722, EN 16102, EN 16072
- OASIS - CAP ver. 1.2
- I_HeERO_Milestone 31 Data Integration TPS to PSAP_V1.1.pdf
- I_HeERO_Milestone 30 Data Integration PSAP to PSAP_V1.1.pdf

1. Rol

Această interfață permite transferul unidirecțional al informațiilor de tip eCall MSD provenite de la un Centru de asistență rutieră - TPSP către Centrul 112 București care este responsabil în România de recepționarea apelurilor de tip eCall. Practic, fluxul de gestionare al unui apel identificat drept urgență într-un centru TPSP și direcționat către SNUAU la nivelul Centrului 112 București va respecta modul operațional de gestionare a apelurilor eCall implementat în România.

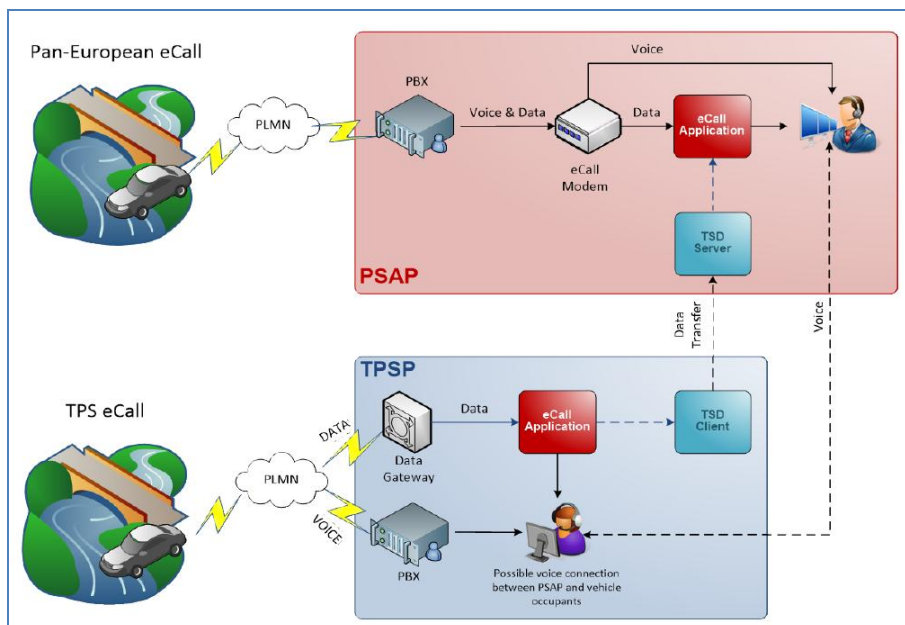


Fig. 1 - eCall clasic și eCall TPSP - Arhitectură generică.

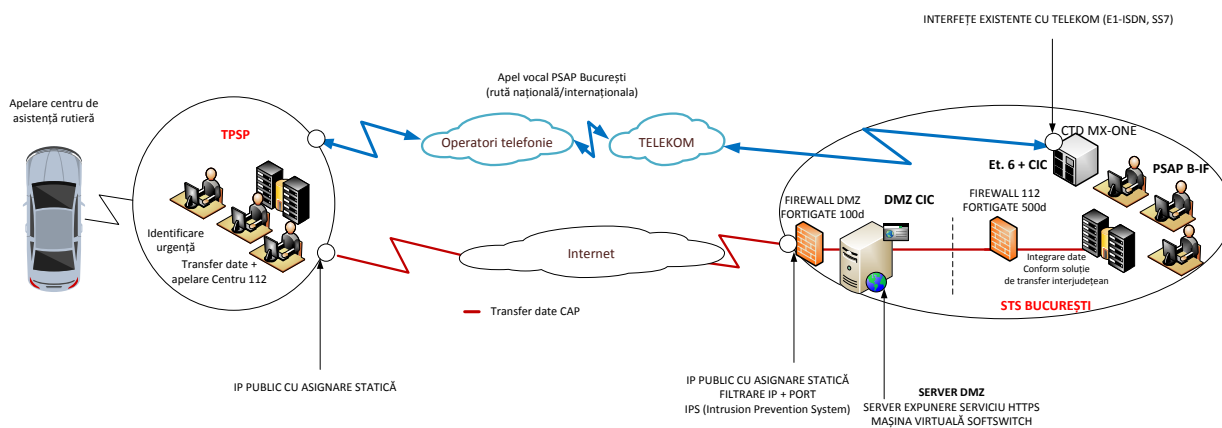


Fig. 2 - Arhitectura de interconectare TPSP - SNUAU

2. Flux de lucru

În situația identificării de către un TPSP a unui apel de asistență rutieră ca fiind unul de urgență 112, vor trebui realizate următoarele acțiuni:

- I. TPSP colectează datele eCall MSD de la IVS și alte date suplimentare deținute de interes în soluționarea urgenței, împreună formând un mesaj TSD, și le transmite (push) prin interfața dedicată HTTPS expusă la nivelul rețelei DMZ 112 către Centrul 112 București (eveniment de tip insert);
- II. TPSP inițiază apel de voce către PSAP 112 București și dacă i se solicită asigură conferința audio între IVS (ocupanții autovehiculului) și PSAP 112 București. La preluarea apelului audio în Centrul 112 București, automat, în platforma SNUAU de

- preluare și dispecerizare apeluri de urgență se generează o fișă de caz 112 pentru urgențe de tip eCall, care se completează automat cu datele TSD primite la pasul I;
- III. dacă se recepționează date noi TSD pentru același IVS, TPSP le transmite (push) prin interfața dedicată către PSAP-ul 112 București (eveniment de tip update), iar în platforma SNUAU de preluare și dispecerizare apeluri de urgență se generează o alertă (vizuală și audio) care va indica faptul că există o actualizare a datelor TSD pentru un caz eCall în curs.

3. Descriere

- I. Soluția tehnică presupune apelarea unui serviciu web tip proxy, găzduit în DMZ 112, conform următorilor pași:
- TPSP apelează metoda de autentificare a serviciului tip proxy (2 parametri: utilizator și parolă administrate de către STS), proxy-ul verifică credențialele și dacă sunt corecte întoarce către TPSP un token generat intern, în caz contrar întoarce mesajul de eroare la autentificare;
 - TPSP apelează metoda de transmitere eveniment a serviciului tip proxy (2 parametri: token, eveniment de tip insert/update pentru date eCall TPSP încapsulate în format CAP 1.2);
 - proxy-ul loghează, validează, procesează și inserează datele eCall TPSP încapsulate în format CAP 1.2, într-o bază de date MS SQL, de pe un server dedicat din centrul 112 București.
- II. Datele necesare pentru apelarea serviciului web tip proxy sunt:
- adresă proxy (HTTPS):
`https://ecall.stsisp.ro/eCallProxy.TPSP112/TPSP112.svc;`
 - encoding date eCall MSD (CAP 1.2): UTF-8;
 - metoda de autentificare (HTTPS POST cu 2 parametri):
`string GetAcces (string User, string Password);`
dacă credențialele sunt corecte întoarce un token de tip string, în caz contrar întoarce un șir gol;
 - metoda de transmitere eveniment (HTTPS POST cu 2 parametri):
`bool SendData (string Token, string Event_CAP);`
dacă token-ul este corect, se procesează mai departe Event_CAP (tip insert/update conform pct. 4) întoarce valoarea TRUE, în caz contrar întoarce valoarea FALSE.

Mențiune:

Schema WSDL a serviciului se va pune la dispoziția TPSP după semnarea protocolului de colaborare cu S.T.S.

4. Structură date eCall TPSP (încapsulate în format CAP 1.2)

a) eveniment de tip insert

```
<?xml version = "1.0" encoding = "UTF-8"?>
<alert xmlns = "urn:oasis:names:tc:emergency:cap:1.2">
  <identifier>10029-1</identifier>
  <!-- SeqNo=UpdateNo -->
  <!-- SeqNo=session ID (unique), UpdateNo=number of updates for a session (>=1) -->
  <!-- Mandatory -->
  <sender>TPSP_TEST</sender>
  <!-- Identifier of the TPSP sending the message -->
  <!-- Mandatory -->
  <sent>2018-04-02T14:39:01+02:00</sent>
  <!-- Date and Time when the CAP is sent -->
  <!-- Mandatory -->
  <status>Actual</status>
  <!-- Actual if eCall is real, Test if eCall is not real (testing purposes) -->
  <!-- Mandatory -->
  <msgType>Alert</msgType>
  <!-- Alert for insert event -->
  <!-- Mandatory -->
  <source>RO1032</source>
  <!-- TPSP operator, blank if missing -->
  <!-- Mandatory -->
  <scope>Private</scope>
  <!-- Private -->
  <!-- Mandatory -->
  <addresses>ecall.stsisp.ro (PSAP RO)</addresses>
  <!-- 112 PSAP identifier, ecall.stsisp.ro (PSAP RO) -->
  <!-- Mandatory -->
  <code>CAP-eCall-v0.1</code>
  <!-- CAP-eCall-v0.1 -->
  <!-- Mandatory -->
  <info>
    <language>en-US</language>
    <!-- en-US -->
    <!-- Mandatory -->
    <category>Transport</category>
    <!-- Transport, Safety or Rescue-->
    <!-- Mandatory -->
    <event>Transport accident</event>
    <!-- Incident type-->
    <!-- Mandatory -->
    <urgency>Immediate</urgency>
    <!-- Immediate -->
```

```

<!-- Mandatory -->
<severity>Unknown</severity>
<!-- Extreme, Severe, Moderate, Minor or Unkown -->
<!-- Mandatory -->
<certainty>Observed</certainty>
<!-- Observed or Likely -->
<!-- Mandatory -->
<effective>2018-04-02T14:39:01+02:00</effective >
<!-- Date and Time from MSD time stamp -->
<!-- Mandatory -->
<headline>Transport accident-eCall-passengerVehicleClassM1</headline>
<!-- concat of "event" + "-" + "eCall" + "-" + "MSD vehicleType" -->
<!-- Mandatory -->
<parameters>
<parameter>
<valueName>VIN</valueName>
<!-- VIN-->
<!-- Mandatory -->
<value>WMIVDSVDSYA123456</value>
<!-- VIN from MSD-->
<!-- Mandatory -->
</parameter>
<parameter>
<valueName>VEH_PASS_NUM</valueName>
<!-- VEH_PASS_NUM-->
<!-- Mandatory -->
<value>U7843434</value>
<!-- Number of passangers from MSD-->
<!-- Mandatory -->
</parameter>
<parameter>
<valueName>VEH_ACTIVATION</valueName>
<!-- VEH_ACTIVATION-->
<!-- Mandatory -->
<value>TRUE</value>
<!-- Activation from MSD-->
<!-- Mandatory -->
</parameter>
<parameter>
<valueName>VEH_DIRECTION</valueName>
<!-- VEH_DIRECTION-->
<!-- Mandatory -->
<value>4</value>
<!-- Direction from MSD-->
<!-- Mandatory -->
</parameter>
<parameter>
<valueName>VEH_TRUST_POS</valueName>
<!-- VEH_TRUST_POS-->
<!-- Mandatory -->
<value>TRUE</value>
<!-- Trusted position from MSD-->
<!-- Mandatory -->

```

```

</parameter>
<parameter>
  <valueName>VEH_PROP_STORAGE</valueName>
  <!-- VEH_PROP_STORAGE-->
  <!-- Mandatory -->
  <value>gasolineTank-electricEnergyStorage</value>
  <!-- concat of all elements set to true in the MSD vehiclePropulsionStorageType separated by a "-" from MSD-->
  <!-- Mandatory -->
</parameter>
<parameter>
  <valueName>VEH_CALL_TYPE</valueName>
  <!-- VEH_CALL_TYPE-->
  <!-- Mandatory -->
  <value>TRUE</value>
  <!-- Call type from MSD -->
  <!-- Mandatory -->
</parameter>
<parameter>
  <valueName>REC_LOC_N1</valueName>
  <!-- REC_LOC_N1 -->
  <!-- Mandatory -->
  <value>44.42315341,26.98476538</value>
  <!-- Comma separated latitude and longitude (in WGS84 decimal) of recent vehicle location N1, from MSD -->
  <!-- Mandatory -->
</parameter>
<parameter>
  <valueName>REC_LOC_N2</valueName>
  <!-- REC_LOC_N2 -->
  <!-- Mandatory -->
  <value>44.42315341,26.98476538</value>
  <!-- Comma separated latitude and longitude (in WGS84 decimal) of recent vehicle location N2, from MSD -->
  <!-- Mandatory -->
</parameter>
<parameter>
  <valueName>OPT_DATA</valueName>
  <!-- OPT_DATA -->
  <!-- Mandatory -->
  <value></value>
  <!-- Optional additional data, from MSD, blank if missing -->
  <!-- Mandatory -->
</parameter>
<parameter>
  <valueName>TPS_ECALL_UID</valueName>
  <!-- TPS_ECALL_UID unique standardised reference identification assigned by the TPSP to a given TPS-eCall,
  defined as follows: 17-characters VIN + 10-digit timestamp (seconds since 1970.01.01 00:00). e.g. for the MSD example in EN
  15722 'WMIVDSVDSYA1234560123456789'. If VIN is unknown, the missing part shall be filled with the character '0'. If
  timestamp is not delivered by the TPS-IVS the TPSP shall fill the timestamp with his receiving time -->
  <!-- Mandatory -->
  <value>WMIVDSVDSYA1234560123456789</value>
  <!-- Mandatory -->
</parameter>
<parameter>
  <valueName>TPS_ECALL_SID</valueName>
  <!-- TPS_ECALL_SID shortened form of the TPS-eCall-UID, which is restricted to current and recent incidents, designed to be
  appropriate for forwarding verbally to a PSAP operator, to allow less-equipped PSAPs to refer to a specific TPS-eCall set of data
  -->

```

```

for a current or recent incident. It is defined as follows: 3-characters TPSP-code + 4-digit incident-code -->
<!-- Mandatory -->
  <value>ATX1234</value>
<!-- Mandatory -->
</parameter>
<parameter>
  <valueName>ECALL_ID</valueName>
<!-- ECALL_ID the "Version" parameter from MSD -->
<!-- Mandatory -->
  <value>1</value>
<!-- Mandatory -->
</parameter>
<parameter>
  <valueName>TPSP_CALLBACK_NUM</valueName>
<!-- TPSP_CALLBACK_NUM telephone number of a prioritised voice contact at the TPSP call centre which can be used by
the PSAP in case a subsequent call-back is required to request more details about the emergency or even to speak to vehicle
occupants -->
<!-- Mandatory -->
  <value>+49893820</value>
<!-- Mandatory, blank if missing -->
</parameter>
<parameter>
  <valueName>VEH_PHONE_NUM</valueName>
<!-- VEH_PHONE_NUM (if available): telephone number of the TPS In-Vehicle System which may be used to attempt a call
back to the vehicle -->
<!-- Mandatory -->
  <value>+49873452</value>
<!-- Mandatory, blank if missing -->
</parameter>
<parameter>
  <valueName>ADDITIONAL_DATA</valueName>
<!-- ADDITIONAL_DATA for accessing optional data (future needs) -->
<!-- Mandatory -->
  <value></value>
<!-- Mandatory, blank if missing -->
</parameter>
</parameters>
<resources>
<resource>
  <resourceDesc>eCall MSD message</resourceDesc>
<!-- eCall MSD message Human readable text describing the attached MSD resource -->
<!-- Mandatory -->
  <mimeType>text/xml</mimeType>
<!-- text/xml -->
<!-- Mandatory -->
  <derefUri>Y2ljY2lvcGFwZX...</derefUri>
<!-- Base64 encoded MSD message -->
<!-- Mandatory -->
</resource>
<resource>
  <resourceDesc>eCall TSD message</resourceDesc>
<!-- eCall TSD message Human readable text describing the attached TSD resource -->
<!-- Mandatory -->
  <mimeType>text/xml</mimeType>
<!-- text/xml -->
<!-- Mandatory -->
  <derefUri>X4lyK2lvcGjHK...</derefUri>

```

```

<!-- Base64 encoded TSD message -->
<!-- Mandatory -->
</resource>
</resources>
<area>
  <areaDesc>Romania, Calarasi, Autostrada A2, KM 74</areaDesc>
<!-- Incident location description in free text, blank if missing -->
<!-- Mandatory -->
  <circle>44.42315341,26.98476538 0</circle>
<!-- Comma separated latitude and longitude (in WGS84 decimal) and space separated radius of vehicle location, from MSD --
>
<!-- Mandatory -->
</area>
</info>
</alert>

```

b) eveniment de tip update

```

<?xml version = "1.0" encoding = "UTF-8"?>
<alert xmlns = "urn:oasis:names:tc:emergency:cap:1.2">
  <identifier>10029-2</identifier>
  <!-- SeqNo-UpdateNo -->
  <!-- SeqNo=session ID (unique), UpdateNo=number of updates for a session (>=2) -->
  <!-- Mandatory -->
  <sender>TPSP_OPEL</sender>
  <!-- Identifier of the TPSP sending the message -->
  <!-- Mandatory -->
  <sent>2018-04-02T14:39:01+02:00</sent>
  <!-- Date and Time when the CAP is sent -->
  <!-- Mandatory -->
  <status>Actual</status>
  <!-- Actual if eCall is real, Test if eCall is not real (testing purposes) -->
  <!-- Mandatory -->
  <msgType>Update</msgType>
  <!-- Update for update event -->
  <!-- Mandatory -->
  <source>RO1032</source>
  <!-- TPSP operator, blank if missing -->
  <!-- Mandatory -->
  <scope>Private</scope>
  <!-- Private -->
  <!-- Mandatory -->
  <addresses>ecall.stsisp.ro (PSAP RO)</addresses>
  <!-- 112 PSAP identifier, ecall.stsisp.ro (PSAP RO) -->
  <!-- Mandatory -->
  <code>CAP-eCall-v0.1</code>
  <!-- CAP-eCall-v0.1 -->
  <!-- Mandatory -->
  <info>
    <language>en-US</language>
    <!-- en-US -->
    <!-- Mandatory -->
    <category>Transport</category>
    <!-- Transport, Safety or Rescue -->
  </info>

```



```

<!-- Mandatory -->
<event>Transport accident</event>
<!-- Incident type -->
<!-- Mandatory -->
<urgency>Immediate</urgency>
<!-- Immediate -->
<!-- Mandatory -->
<severity>Unknown</severity>
<!-- Extreme, Severe, Moderate, Minor or Unkown -->
<!-- Mandatory -->
<certainty>Observed</certainty>
<!-- Observed or Likely -->
<!-- Mandatory -->
<effective>2018-04-02T14:39:01+02:00</effective >
<!-- Date and Time from MSD time stamp -->
<!-- Mandatory -->
<headline>Transport accident-eCall-passengerVehicleClassM1</headline>
<!-- concat of "event" + "-" + "eCall" + "-" + "MSD vehicleType" -->
<!-- Mandatory -->
<parameters>
<parameter>
<valueName>VIN</valueName>
<!-- VIN-->
<!-- Mandatory -->
<value>WMIVDSVDSYA123456</value>
<!-- VIN from MSD-->
<!-- Mandatory -->
</parameter>
<parameter>
<valueName>VEH_PASS_NUM</valueName>
<!-- VEH_PASS_NUM-->
<!-- Mandatory -->
<value>U7843434</value>
<!-- Number of passangers from MSD-->
<!-- Mandatory -->
</parameter>
<parameter>
<valueName>VEH_ACTIVATION</valueName>
<!-- VEH_ACTIVATION-->
<!-- Mandatory -->
<value>TRUE</value>
<!-- Activation from MSD-->
<!-- Mandatory -->
</parameter>
<parameter>
<valueName>VEH_DIRECTION</valueName>
<!-- VEH_DIRECTION-->
<!-- Mandatory -->
<value>4</value>
<!-- Direction from MSD-->
<!-- Mandatory -->
</parameter>
<parameter>

```

```

<valueName>VEH_TRUST_POS</valueName>
<!-- VEH_TRUST_POS-->
<!-- Mandatory -->
  <value>TRUE</value>
<!-- Trusted position from MSD-->
<!-- Mandatory -->
</parameter>
<parameter>
  <valueName>VEH_PROP_STORAGE</valueName>
<!-- VEH_PROP_STORAGE-->
<!-- Mandatory -->
  <value>gasolineTank-electricEnergyStorage</value>
<!-- concat of all elements set to true in the MSD vehiclePropulsionStorageType separated by a "-" from MSD-->
<!-- Mandatory -->
</parameter>
<parameter>
  <valueName>VEH_CALL_TYPE</valueName>
<!-- VEH_CALL_TYPE-->
<!-- Mandatory -->
  <value>TRUE</value>
<!-- Call type from MSD -->
<!-- Mandatory -->
</parameter>
<parameter>
  <valueName>REC_LOC_N1</valueName>
<!-- REC_LOC_N1 -->
<!-- Mandatory -->
  <value>44.42315341,26.98476538</value>
<!-- Comma separated latitude and longitude (in WGS84 decimal) of recent vehicle location N1, from MSD -->
<!-- Mandatory -->
</parameter>
<parameter>
  <valueName>REC_LOC_N2</valueName>
<!-- REC_LOC_N2 -->
<!-- Mandatory -->
  <value>44.42315341,26.98476538</value>
<!-- Comma separated latitude and longitude (in WGS84 decimal) of recent vehicle location N2, from MSD -->
<!-- Mandatory -->
</parameter>
<parameter>
  <valueName>OPT_DATA</valueName>
<!-- OPT_DATA -->
<!-- Mandatory -->
  <value></value>
<!-- Optional additional data, from MSD, blank if missing -->
<!-- Mandatory -->
</parameter>
<parameter>
  <valueName>TPS_ECALL_UID</valueName>
<!-- TPS_ECALL_UID unique standardised reference identification assigned by the TPSP to a given TPS-eCall,
defined as follows: 17-characters VIN + 10-digit timestamp (seconds since 1970.01.01 00:00). e.g. for the MSD example in EN
15722 'WMIVDSVDSYA1234560123456789'. If VIN is unknown, the missing part shall be filled with the character '0'. If
timestamp is not delivered by the TPS-IVS the TPSP shall fill the timestamp with his receiving time -->
<!-- Mandatory -->

```

```

<value>WMIVDSVDSYA1234560123456789</value>
<!-- Mandatory -->
</parameter>
<parameter>
  <valueName>TPS_ECALL_SID</valueName>
  <!-- TPS_ECALL_SID shortened form of the TPS-eCall-UID, which is restricted to current and recent incidents, designed to be
  appropriate for forwarding verbally to a PSAP operator, to allow less-equipped PSAPs to refer to a specific TPS-eCall set of data
  for a current or recent incident. It is defined as follows: 3-characters TPSP-code + 4-digit incident-code -->
  <!-- Mandatory -->
  <value>ATX1234</value>
  <!-- Mandatory -->
</parameter>
<parameter>
  <valueName>ECALL_ID</valueName>
  <!-- ECALL_ID the "Version" parameter from MSD -->
  <!-- Mandatory -->
  <value>1</value>
  <!-- Mandatory -->
</parameter>
<parameter>
  <valueName>TPSP_CALLBACK_NUM</valueName>
  <!-- TPSP_CALLBACK_NUM telephone number of a prioritised voice contact at the TPSP call centre which can be used by
  the PSAP in case a subsequent call-back is required to request more details about the emergency or even to speak to vehicle
  occupants -->
  <!-- Mandatory -->
  <value>+49893820</value>
  <!-- Mandatory, blank if missing -->
</parameter>
<parameter>
  <valueName>VEH_PHONE_NUM</valueName>
  <!-- VEH_PHONE_NUM (if available): telephone number of the TPS In-Vehicle System which may be used to attempt a call
  back to the vehicle -->
  <!-- Mandatory -->
  <value>+49873452</value>
  <!-- Mandatory, blank if missing -->
</parameter>
<parameter>
  <valueName>ADDITIONAL_DATA</valueName>
  <!-- ADDITIONAL_DATA for accessing optional data (future needs) -->
  <!-- Mandatory -->
  <value></value>
  <!-- Mandatory, blank if missing -->
</parameter>
</parameters>
<resources>
<resource>
  <resourceDesc>eCall MSD message</resourceDesc>
  <!-- eCall MSD message Human readable text describing the attached MSD resource -->
  <!-- Mandatory -->
  <mimeType>text/xml</mimeType>
  <!-- text/xml -->
  <!-- Mandatory -->
  <derefUri>Y2ljY2lvcGFwZX...</derefUri>
  <!-- Base64 encoded MSD message -->
  <!-- Mandatory -->
</resource>
<resource>

```

```
<resourceDesc>eCall TSD message</resourceDesc>
<!-- eCall TSD message Human readable text describing the attached TSD resource -->
<!-- Mandatory -->
  <mimeType>text/xml</mimeType>
<!-- text/xml -->
<!-- Mandatory -->
  <derefUri>X4lyK2lccCGjHK...</derefUri>
<!-- Base64 encoded TSD message -->
<!-- Mandatory -->
</resource>
</resources>
<area>
  <areaDesc>Romania, Calarasi, Autostrada A2, KM 74</areaDesc>
<!-- Incident location description in free text, blank if missing -->
<!-- Mandatory -->
  <circle>44.42315341,26.98476538 0</circle>
<!-- Comma separated latitude and longitude (in WGS84 decimal) and space separated radius of vehicle location, from MSD -->
v
<!-- Mandatory -->
</area>
</info>
</alert>
```