Roaming Location Protocol

Candidate Version 1.2 – 29 May 2012

Open Mobile Alliance

OMA-TS-RLP-V1_2-20120529-C

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1. Scope

The purpose of this document is to specify the Roaming Location Protocol (RLP) technical specification of an inter-Location Server interface as described in [MLS AD] and based on MLP as specified in [OMA-MLP].

2. References

2.1 Normative References

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3. Terminology and Conventions

3.1 Conventions

The key words “MUST”, “MUST NOT”, “REQUIRED”, “SHALL”, “SHALL NOT”, “SHOULD”, “SHOULD NOT”, “RECOMMENDED”, “MAY”, and “OPTIONAL” in this document are to be interpreted as described in [RFC2119].

All sections and appendixes, except “Scope” and “Introduction”, are normative, unless they are explicitly indicated to be informative.

Notational Conventions and Generic Grammar

The following rules are used throughout this specification to describe basic parsing constructs. ANSI X3.4-1986 defines the US-ASCII coded character set, see [ASCII].

CR	= <US-ASCII CR, carriage return (13)>
LF	= <US-ASCII LF, linefeed (10)>
SP	= <US-ASCII SP, space (32)>

A set of characters enclosed in brackets ([]) is a one-character expression that matches any of the characters in that set (e.g., “[lcs]” matches either an “l”, “c”, or “s”). A range of characters is indicated with a dash (e.g., “[a-z]” matches any lower-case letter).

The one-character expression can be followed by an interval operator, for example [a-zA-Z]{min,max} in which case the one-character expression is repeated at least min and at most max times (e.g., “[a-zA-Z]{2,4}” matches for example the strings “at”, “Good”, and “biG”).

DTD Syntax Notation

The table below describes the special characters and separators used in the DTDs defining the different services.

Character	Meaning
+	One or more occurrence
*	Zero or more occurrences
?	Optional
()	A group of expressions to be matched together
|	OR...as in, “this or that”
,	Strictly ordered. Like an AND

3.2 Definitions

Lr	Reference point between Location Servers. See also [23.271].
Location Server	Software and/or hardware entity offering location capabilities.
Target	The entity being located.
Timing Advance	Parameter in GSM network used by the MS to advance its timings of transmissions to the Base Station so as to compensate for propagation delay. This parameter can also be used to estimate the distance between Base Station and MS.

3.3 Abbreviations

A-GPS	Assisted GPS
ANSI	American National Standards Institute
DTD	Document Type Definition
E-OTD	Enhanced Observed Time Difference (E-OTD)
GMLC	Gateway Mobile Location Center
GMT	Greenwich Mean Time
GPS	Global Positioning System
HTTP	Hypertext Transfer Protocol
HTTPS	HTTP Secure
LCS	Location Services
MLC	Mobile Location Center
MLP	Mobile Location Protocol
MPC	Mobile Positioning Center
MS	Mobile Station
MSID	Mobile Station Identifier
MSISDN	Mobile Station ISDN
OMA	Open Mobile Alliance
OTDOA	Observed Time Difference of Arrival
SLP	SUPL Location Platform
SSL	Secure Socket Layer
SUPL	Secure User Plane Location
TLS	Transport Layer Security
U-TDOA	Uplink Time Difference of Arrival
URI	Uniform Resource Identifier
URL	Uniform Resource Locator
UTM	Universal Transverse Mercator
WAP	Wireless Application Protocol
WGS	World Geodetic System
XML	Extensible Markup Language

4. Introduction

The purpose of this specification is to specify the Roaming Location Protocol (RLP) technical specification of an inter-Location Server interface as described in [MLS AD]. In the 3GPP context, this specification will be an instantiation of the Lr reference point as defined in [23.271]. Additionally, this specification will be an instantiation of a reference point between SUPL Providers as described in [SUPL AD] with the purpose to transport information between SUPL Providers to enable positioning of roaming SUPL Enabled Terminals as described in [SUPL AD]. Examples of such information are tunneling of SUPL messages, coarse position used when generating GPS assistance data or the actual GPS assistance data.

This specification is based on MLP as specified in [OMA-MLP]. This specification refers to [OMA-MLP] where applicable.

4.1 Version 1.0

The initial release of RLP. The functionality is aligned with MLP V3.2 and the 3GPP Release 6 LCS Specification.

4.2 Version 1.1

The main enhancement in MLP V3.3 is to align with the 3GPP Release 7 LCS Specification and OMA SUPL 2.0. Examples of enhancements are historic location reporting, intermediate location reporting, support of civic location format and support of map data. It also includes functionality to support SUPL in roaming scenarios.

4.3 Version 1.2

5. The main enhancement in RLP V1.2 is to align with the 3GPP Release 10 LCS Specification, OMA SUPL 3.0 and OMA LPPe V1.0. Examples of enhancements are trigger pause resume, trigger query and velocity trigger.Inter-Location Server Protocol

5.1 Overview

The picture below shows the general arrangement. Functional Requirements for both Application to Location Server interface and inter-Location Server interface for 3GPP networks may be found in 23.271 Rel6 [23.271]. Protocol specifics for Application to Location Server interface can be found in [OMA-MLP].

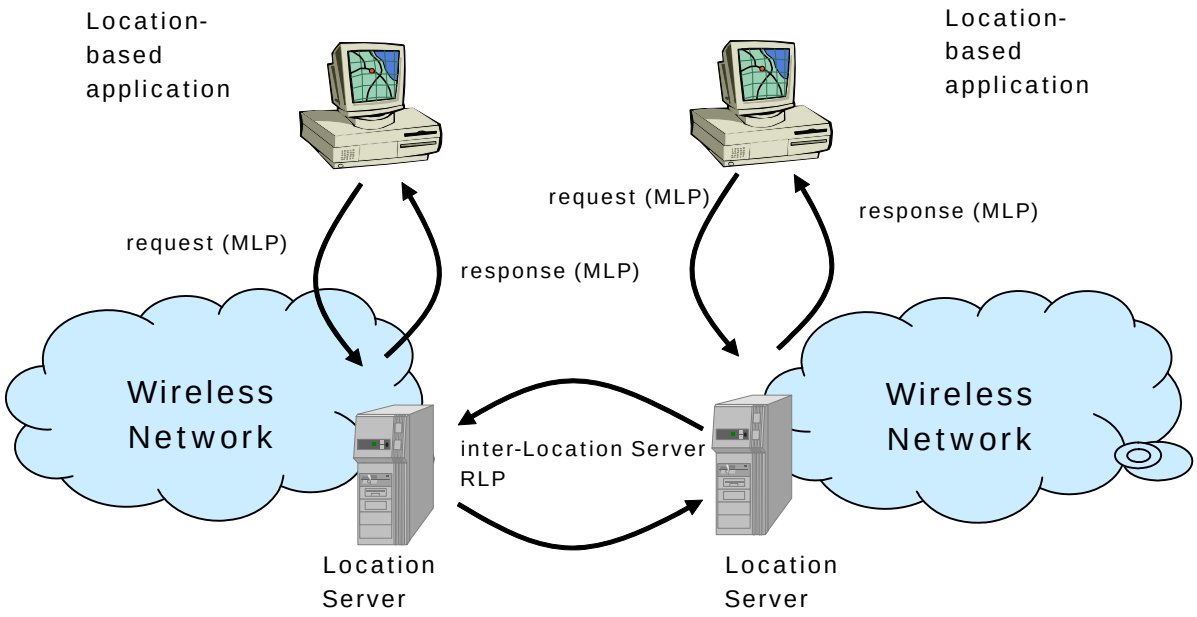

Figure 1: RLP Overview

5.1.1 Inter-Location Server protocol structure

The general structure of the inter-Location Server protocol follows the structure of MLP and is found in [OMA-MLP].

5.1.2 Inter-Location Server protocol extension mechanism

The extension mechanism in inter-Location Server protocol is analogous to MLP and is found in [OMA-MLP].

6. Normative Behavior

The following section describes normative behavior with regards to the inter-Location Server specification.

6.1 Parsing of DTDs

Location Servers MUST parse all valid RLP XML documents. XML documents received not following the XML format SHALL result in a resid 106 - SYNTAX ERROR. Requests not complying with the RLP protocol SHALL result in resid 105, 110 or 111.

Although certain elements are used only for optional functionality, all implementations MUST still be able to parse any well-formed and valid location XML instance document and respond with an appropriate error code if necessary.

For example, an implementation not supporting the Emergency Roaming Location Immediate Request must still be able to parse such a request and respond that the service is not supported.

6.2 Invalid Values

This specification specifies valid values and ranges for most elements and attributes in request messages. If any value beyond such constraints - e.g., a negative requested accuracy - is provided in a request message then the Location Server SHALL return the error code "INVALID PROTOCOL ELEMENT VALUE" for invalid element values, and "INVALID PROTOCOL ELEMENT ATTRIBUTE VALUE" for invalid attribute values.

6.3 QoP

Quality of position, QoP, can mean either of the following or a combination of them - possibly with a precedence order:

- Response time requirement – i.e., how long the application is willing to wait for the location information;
- Age of the location information - i.e., when was the information actually collected;
- Accuracy of the location information (a system estimation).

6.3.1 Quality of Position in Request Messages

Age of location information:

Location Servers may specify a requested maximum age using the `max_loc_age` element in a request message. This information SHOULD be used by the Location Server of the target's serving network to, for example, to determine whether a cached location estimate is sufficient.

Accuracy of location information:

Location Servers may specify a requested accuracy using the `eqop` element in a request message. This information may be used by the Location Server of the target's serving network to, for example, select an appropriate location method.

6.3.2 Quality of Position in Answer and Report Messages

Maximum age of location information:

1. The maximum age of delivered location information MUST be indicated in answer and report messages (unless unknown), through a time stamp. The time stamp MUST specify the time when the location information was originally determined. Note: "time" here MUST also give an indication about the time zone or offset to GMT.
2. If no specific maximum age is specified in the request message, then the maximum age of the delivered location information is up to the Location Server of the target's serving network (e.g., it can do a best effort, use the most

efficient location method, use cached data, etc.). The age of the delivered information MUST still be indicated through the time stamp (unless unknown).

3. Depending on what is available, the actual delivered maximum age MAY be larger than the requested maximum age. It is recommended that applications check the time stamp of the delivered location information, if the age of the location information is important. Any Location Server which only passes on the result MUST not change the result it received.

Accuracy of location information:

1. Any delivered accuracy information MUST relate to the point in time when the location information was originally determined, as specified by the time stamp.

2. If no specific accuracy was requested, then the accuracy of the delivered location information is up to the Location Server of the target's serving network (e.g., it can do a best effort, use the most efficient or the most accurate location method, etc.). The Location Server MUST return accuracy information in the response to indicate the actual delivered accuracy (unless unknown).

Depending on what is available, the actual delivered accuracy MAY be less than the requested accuracy. Even if the delivered accuracy of the Location Server of the target's serving network is less than the requested one any intermediate Location Server MUST pass the result unchanged, and MUST NOT translate it into, e.g., an error message such as "QOP NOT ATTAINABLE". Note: If accuracy is important, it is recommended that applications check the actual accuracy of the delivered location information.

Confidence of accuracy information:

A Location Server MAY indicate a confidence level for delivered accuracy information, e.g., "with 65% confidence". The level of confidence is indicated in answer and report messages using the `lev_conf` element. If no `lev_conf` element is present in an answer or report message, then the level of confidence is unspecified.

The level of confidence applies to all accuracy elements within a `pd` element.

Requested quality of position cannot be provided:

The behavior of the Location Server of the target's serving network when a requested quality of position cannot be provided depends on the class of QoP requested (qop_class). Any other Location Server which only passes on the result MUST NOT change the result it received.

6.4 Types of Location Information

The RLP specification allows a Location Server to request several different types of location information, such as various coordinate reference systems. In addition to location information an implementation MAY support additional information such as speed, direction and altitude.

All implementations MUST support the following location information:

- The coordinate reference system 4326 of the EPSG database

Implementations MAY support:

- Other coordinate reference systems,
- speed,
- direction,
- altitude.

6.4.1 Location Information in Request Messages

Location Servers may request that the location information is returned in a specific coordinate reference system, by including a `geo_info` element in request messages.

6.4.2 Location Information in Answer and Report Messages

1. If no specific location information was requested in a corresponding request message, then the Location Server MUST return the result in terms of the coordinate reference system 4326 of the EPSG database.

2. If the speed, direction and altitude are known the Location Server SHOULD return the information together with the location information.

6.5 Priority

Location Servers may specify a requested priority by including a `prio` element in request messages with the exception of emergency request, which are always treated with the highest priority.

It is up to the Location Server of the network that finally performs the positioning what actual priority is given to any particular request. Any intermediate Location Server MUST NOT change the priority it received prior to forwarding it. A requested priority SHOULD be honored if possible. Emergency request MUST be handled with the highest priority possible.

If a specific priority is not specified in a request message (no `prio` element is included) - except emergency requests -, it defaults to “NORMAL”.

6.6 Target Identities

Location Servers MUST specify the identity of the target device in the `msid` element. This element allows that the target device is uniquely addressed in multiple ways including MSISDN, IMSI, IP address, etc.

All implementations deployed in a 3GPP environment MUST support the following identities:

- MSISDN

All implementations deployed in a 3GPP2 environment MUST support the following identities:

- MDN

7. Mobile Location Service Definitions

7.1 Transport Protocol Layer Definitions

RLP can be implemented using various transport mechanisms. The following mappings are specified for RLP:

Mapping	Section
HTTP	11 HTTP Mapping

7.2 Element Layer Definitions

7.2.1 Identity Element Definitions

Identity Element Definitions are found in [OMA-MLP].

7.2.2 Function Element Definitions

```
<!-- RLP_FUNC -->
<!--
RLP V1.2 Document Type Definition

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RLP is an XML language. Typical usage:
   <?xml version="1.0"?>
   <!DOCTYPE rlp_svc_init PUBLIC "-//OMA//DTD {abbrev x.y}//EN"
             "http://www.openmobilealliance.org/DTD/{filename}"
             [<?oma-{ref}-ver supported-versions="{versions}"?>]>
   <rlp_svc_init>
      ...
   </rlp_svc_init>

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Open Mobile Alliance Ltd. web site at
http://www.openmobilealliance.org/
-->

<!ELEMENT   eme_event                                          (eme_pos+)>
<!ATTLIST   eme_event
            eme_trigger (EME_ORG | EME_REL)                    #REQUIRED>
<!ELEMENT   tlrr_event                                         (ms_action | change_area |
                                                               velocity_event | distance_event |
                                                               equidistance_event)>
<!ELEMENT   ms_action                                          EMPTY>
<!ATTLIST   ms_action
            type (MS_AVAIL)                                    #REQUIRED>
<!ELEMENT   change_area                                        (target_area, no_of_reports?)>
<!ATTLIST   change_area
            type (MS_ENTERING | MS_LEAVING | MS_WITHIN_AREA |  #REQUIRED
            MS_OUTSIDE_AREA)
            loc_estimates (TRUE | FALSE)                       #REQUIRED>
<!ELEMENT   velocity_event                                     (target_speed, no_of_reports?,
                                                               minimumIntervalTime?)>
```

```
<!ATTLIST   velocity_event
            type (INCREASING_ABOVE | ABOVE | DECREASING_BELOW  #REQUIRED
            | BELOW)
            vel_estimates (TRUE | FALSE)                      #REQUIRED>
<!ELEMENT   distance_event                                    (target_distance,reference_object+,
                                                              no_of_reports?,
                                                              minimumIntervalTime?)>
<!ATTLIST   distance_event
            type (ENTERING_DISTANCE | LEAVING_DISTANCE |      #REQUIRED
            WITHIN_DISTANCE | OUTSIDE_DISTANCE)
            loc_estimates (TRUE | FALSE)                      #REQUIRED>
<!ELEMENT   equidistance_event                                (target_equidistance,
                                                              no_of_reports?,
                                                              minimumIntervalTime?)>
<!ATTLIST   equidistance_event
            loc_estimates (TRUE | FALSE)                      #REQUIRED>
<!ELEMENT   target_area                                       ((shape, cc?) |(shape, civicloc) |
                                                              civicloc | cc | plmn+)>
<!ELEMENT   target_speed                                      (speed)>
<!ELEMENT   target_distance                                   (#PCDATA)>
<!ELEMENT   target_equidistance                               (#PCDATA)>
<!ELEMENT   reference_object                                  (msid)>
<!ELEMENT   no_of_reports                                     (#PCDATA)>
<!ELEMENT   name_area                                         (#PCDATA)>
<!ELEMENT   plmn                                              (mcc, mnc)>
<!ELEMENT   interval                                          (#PCDATA)>
<!ELEMENT   loc_type                                          EMPTY>
<!ATTLIST   loc_type
            type (CURRENT | LAST |CURRENT_OR_LAST |           "CURRENT">
            LAST_OR_CURRENT | INITIAL |
            CURRENT_AND_INTERMEDIATE | NOTIF_VERIF_ONLY)
            per_type (REALTIME | QUASIREALTIME | BATCH)       "REALTIME">
<!ELEMENT   batch_cond                                        (#PCDATA)>
<!ATTLIST   batch_cond
            batch_type (MEASUREMENTS | MINUTES | ENDOFSERVICE "ENDOFSERVICE">
            )
<!ELEMENT   prio                                              EMPTY>
<!ATTLIST   prio
            type (NORMAL | HIGH)                              "NORMAL">
<!ELEMENT   pushaddr                                          (url, id?, pwd?)>
<!ELEMENT   req_id                                            (#PCDATA)>
<!ELEMENT   lcs_ref                                           (#PCDATA)>
<!ELEMENT   start_time                                        (#PCDATA)>
<!ATTLIST   start_time
            utc_off CDATA                                     "0000">
<!ELEMENT   stop_time                                         (#PCDATA)>
<!ATTLIST   stop_time
            utc_off CDATA                                     "0000">
<!ELEMENT   duration                                          (#PCDATA)>
<!ELEMENT   url                                               (#PCDATA)>
<!ELEMENT   time_remaining                                    (#PCDATA)>
<!ELEMENT   trigger_data                                      (req_id, msid+, trlrr?)>
```

7.2.3 Location Element Definitions

```
<!-- RLP_LOC -->
```

```
<!--
RLP V1.2 Document Type Definition

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RLP is an XML language. Typical usage:
   <?xml version="1.0"?>
   <!DOCTYPE rlp_svc_xxx PUBLIC "-//OMA//DTD {abbrev x.y}//EN"
             "http://www.openmobilealliance.org/DTD/{filename}"
             [<?oma-{ref}-ver supported-versions="{versions}"?>]>
   <rlp_svc_xxx>
      ...
   </rlp_svc_xxx>

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http://www.openmobilealliance.org/
-->

<!ELEMENT   pos                                          (msid, (pd | poserr), add_info?)>
<!ATTLIST   pos
            pos_method (CELL | OTDOA | GPS | A-GPS | GNSS |   #IMPLIED
            A-GNSS | E-OTD | U-TDOA | AFLT | EFLT | E-CID |
            UNKNOWN | OTHER)
            result_type (INTERMEDIATE | FINAL)               "FINAL">
<!ELEMENT   eme_pos                                          (msid, (pd | poserr), esrd?,
                                                              esrk?)>
<!ATTLIST   eme_pos
            pos_method (CELL | OTDOA | GPS | A-GPS | GNSS |   #IMPLIED
            A-GNSS | E-OTD | U-TDOA | AFLT | EFLT | E-CID |
            UNKNOWN | OTHER)
            result_type (INTERMEDIATE | FINAL)               "FINAL">
<!ELEMENT   pd                                               (time, (shape | civicloc | (shape,
                                                             civicloc)), (alt, alt_unc?)?,
                                                              speed?, direction?,
                                                              lev_conf?, qop_not_met? ,
                                                             MotionStateList?)>
<!ELEMENT   trl_pos                                          (msid, reference_object*, (pd |
                                                             poserr | time))>
<!ATTLIST   trl_pos
            trl_trigger (PERIODIC | MS_AVAIL | CHANGE_AREA    #REQUIRED
            | VELOCITY | DISTANCE | EQUIDISTANCE)
            pos_method (CELL | OTDOA | GPS | A-GPS | GNSS |   #IMPLIED>
            A-GNSS | E-OTD | U-TDOA | AFLT | EFLT | E-CID |
            UNKNOWN | OTHER)
<!ELEMENT   poserr                                           (result, add_info?, time)>
<!ELEMENT   time                                             (#PCDATA)>
<!ATTLIST   time
            utc_off CDATA                                    "0000">
<!ELEMENT   alt                                              (#PCDATA)>
<!ELEMENT   alt_unc                                          (#PCDATA)>
<!ELEMENT   civicloc                                         (civicloc_element+)>
<!ATTLIST   civicloc
            xml:lang CDATA                                   #IMPLIED>
<!ELEMENT   civicloc_element                                 (#PCDATA)>
<!ATTLIST   civicloc_element
            element_type (COUNTRY | A1 | A2 | A3 | A4 | A5    #REQUIRED
            | A6 | PRD | POD | STS | HNO | HNS | LMK | LOC
            | FLR | NAM | PC | BLD | UNIT | ROOM | PLC |
            PCN | POBOX | ADDCODE | SEAT | RD | RDSEC |
            RDBR | RDSUBBR | PRM | POM)
```

```
            xml:lang CDATA                                      #IMPLIED>
<!ELEMENT   MotionStateList                                     (PrimaryMotionState,
                                                                SecondaryMotionState*, Confidence)>
<!ELEMENT   PrimaryMotionState                                  (MotionState)>
<!ELEMENT   SecondaryMotionState                                (MotionState)>
<!ELEMENT   MotionState                                         (#PCDATA)>
<!ELEMENT   Confidence                                          (#PCDATA)>
<!ELEMENT   qop_not_met                                         EMPTY>
<!ELEMENT   direction                                           (#PCDATA)>
<!ELEMENT   speed                                               (#PCDATA)>
<!ELEMENT   lev_conf                                            (#PCDATA)>
<!ELEMENT   geo_info                                            (CoordinateReferenceSystem)>
<!ATTLIST   geo_info
            requested_positiondata (SHAPE |CIVICLOC |           "SHAPE"
            SHAPE_AND_CIVICLOC)
            Strict (YES | NO)                                   "YES">
<!ELEMENT   CoordinateReferenceSystem                           (Identifier)>
<!ELEMENT   Identifier                                          (code, codeSpace, edition)>
<!ELEMENT   code                                                (#PCDATA)>
<!ELEMENT   codeSpace                                           (#PCDATA)>
<!ELEMENT   edition                                             (#PCDATA)>
<!ELEMENT   service_coverage                                    ((cc, ndc*)+)>
<!ELEMENT   MotionStateRequest                                  EMPTY>
```

7.2.4 Result Element Definitions

Result Element Definitions are found in [OMA-MLP].

7.2.5 Shape Element Definitions

Shape Element Definitions are found in [OMA-MLP].

7.2.6 Quality of Position Element Definitions

Quality of Position Element Definitions are found in [OMA-MLP].

7.2.7 Network Parameters Element Definitions

```
<!-- RLP_NET -->
<!--
RLP V1.2 Document Type Definition

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RLP is an XML language. Typical usage:
   <?xml version="1.0"?>
   <!DOCTYPE rlp_svc_xxx PUBLIC "-//OMA//DTD {abbrev x.y}//EN"
             "http://www.openmobilealliance.org/DTD/{filename}"
             [<?oma-{ref}-ver supported-versions="{versions}"?>]>
   <rlp_svc_xxx>
      ...
   </rlp_svc_xxx>

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-->
<!ELEMENT   net_param                  (h_ls?, v_ls?, pce?, neid?, imsi?, (gsm_net_param |
                                       wcdma_net_param | cdma_net_param | lte_net_param |
                                       hrpd_net_param | umb_net_param | wlan_net_param)?,
                                       lcs_periodic_info?)>
<!ELEMENT   gsm_net_param              (cgi?, nmr?, ta?, lmsi?)>
<!ELEMENT   wcdma_net_param            (global_uc_id?, frequencyinfo?, （primaryscramblingcode |
                                       cellparametersid)?, sai?)>
<!ELEMENT   cdma_net_param             (nid, sid, base_id, base_lat?, base_long?, ref_pn? ,
                                       correlation_id?, esn?, meid?, mpcap?, mscid?, pc_ssn?,
                                       pos_tech_select?)>
<!ELEMENT   lte_net_param              (mcc?, mnc?, lte_ci?, lte_ta?, lte_mrl?)>
<!ELEMENT   hrpd_net_param             (sector_id?, base_lat?, base_long?, gps_week_number?,
                                       gps_seconds?)>
<!ELEMENT   umb_net_param              (sector_id?, mcc?, mnc?, base_lat?, base_long?,
                                       gps_week_number?, gps_seconds?)>
<!ELEMENT   wlan_net_param             (apMACAddress?, apTransmitPower?, apAntennaGain?,
                                       apSignaltoNoise?, apDeviceType?, apSignalStrength?,
                                       apChannelFrequency?, apRoundTripDelay?, setTransmitPower?,
                                       setAntennaGain?, setSignaltoNoise?, setSignalStrength?,
                                       apReportedLocation?)>
<!ELEMENT   neid                       (vmscid?, sgsnid?, vlrid? , mme_name?)>
<!ELEMENT   vmscid                     (cc?, ndc?, vmscno)>
<!ATTLIST   vmscid
            capability (1 | 2 | 3 | 4  #IMPLIED>
            | 5)
<!ELEMENT   mme_name                   (#PCDATA)>
<!ELEMENT   vlrid                      (cc?, ndc?, vlrno)>
<!ATTLIST   vlrid
            capability (1 | 2 | 3 | 4  #IMPLIED>
            | 5)
<!ELEMENT   sgsnid                     (cc?, ndc?, sgsnno)>
<!ATTLIST   sgsnid
            capability (1 | 2 | 3 | 4  #IMPLIED>
            | 5)
<!ELEMENT   imsi                       (#PCDATA)>
<!ELEMENT   h_ls                       (#PCDATA)>
<!ELEMENT   v_ls                       (#PCDATA)>
<!ELEMENT   pce                        (#PCDATA)>
<!ELEMENT   cgi                        (mcc, mnc, lac, cellid)>
<!ELEMENT   nmr                        (nmr_element+)>
<!ELEMENT   nmr_element                (arfcn, bsic, rxlev)>
<!ELEMENT   arfcn                      (#PCDATA)>
<!ELEMENT   bsic                       (#PCDATA)>
<!ELEMENT   rxlev                      (#PCDATA)>
<!ELEMENT   mcc                        (#PCDATA)>
<!ELEMENT   mnc                        (#PCDATA)>
<!ELEMENT   ndc                        (#PCDATA)>
<!ELEMENT   cc                         (#PCDATA)>
<!ELEMENT   vmscno                     (#PCDATA)>
<!ELEMENT   vlrno                      (#PCDATA)>
```

```
<!ELEMENT   sgsnno                      (#PCDATA)>
<!ELEMENT   lac                         (#PCDATA)>
<!ELEMENT   cellid                      (#PCDATA)>
<!ELEMENT   ta                          (#PCDATA)>
<!ELEMENT   lmsi                        (#PCDATA)>
<!ELEMENT   global_uc_id                (mcc, mnc, uc_id)>
<!ELEMENT   uc_id                       (#PCDATA)>
<!ATTLIST   uc_id
            status (STALE | CURRENT |   "CURRENT">
            UNKNOWN)
<!ELEMENT   sai                         (mcc, mnc, lac, sac)>
<!ELEMENT   sac                         (#PCDATA)>
<!ELEMENT   frequencyinfo               (uarfcn_ul?, uarfcn_dl?, uarfcn_nt?)>
<!ELEMENT   primaryscramblingcode       (#PCDATA)>
<!ELEMENT   cellparametersid            (#PCDATA)>
<!ELEMENT   uarfcn_ul                   (#PCDATA)>
<!ELEMENT   uarfcn_dl                   (#PCDATA)>
<!ELEMENT   uarfcn_nt                   (#PCDATA)>
<!ELEMENT   nid                         (#PCDATA)>
<!ELEMENT   sid                         (#PCDATA)>
<!ELEMENT   base_id                     (#PCDATA)>
<!ELEMENT   base_lat                    (#PCDATA)>
<!ELEMENT   base_long                   (#PCDATA)>
<!ELEMENT   ref_pn                      (#PCDATA)>
<!ELEMENT   correlation_id              (#PCDATA)>
<!ELEMENT   esn                         (#PCDATA)>
<!ELEMENT   meid                        (#PCDATA)>
<!ELEMENT   mpcap                       (#PCDATA)>
<!ELEMENT   mscid                       (#PCDATA)>
<!ELEMENT   pc_ssn                      (#PCDATA)>
<!ELEMENT   pos_tech_select             EMPTY>
<!ATTLIST   pos_tech_select
            tech (UNKNOWN | CELL |      "UNKNOWN">
            HIGHACC)
<!ELEMENT   lcs_periodic_info           (reportingplmn*)>
<!ATTLIST   lcs_periodic_info
            short_circuit (YES | NO)    "NO"
            prioritized (YES | NO)      "NO">
<!ELEMENT   reportingplmn               (mcc, mnc)>
<!ATTLIST   reportingplmn
            tech (GSM | UMTS)           #IMPLIED>
<!ELEMENT   area_id_list                (gsm_net_param | wcdma_net_param | cdma_net_param |
                                        lte_net_param | hrpd_net_param | umb_net_param |
                                        wlan_net_param)+>
<!ELEMENT   lte_ci                      (#PCDATA)>
<!ELEMENT   lte_ta                      (#PCDATA)>
<!ELEMENT   lte_mrl                     (physicalCellIdentity?, globalCellIdentity?, earfcn-DL?,
                                        measResultEUTRA?)+>
<!ELEMENT   measResultEUTRA             (rsrpResult?, rsrqResult?)>
<!ELEMENT   rsrpResult                  (#PCDATA)>
<!ELEMENT   rsrqResult                  (#PCDATA)>
<!ELEMENT   physicalCellIdentity        (#PCDATA)>
<!ELEMENT   globalCellIdentity          (#PCDATA)>
<!ELEMENT   earfcn-DL                   (#PCDATA)>
<!ELEMENT   sector_id                   (#PCDATA)>
<!ELEMENT   gps_week_number             (#PCDATA)>
<!ELEMENT   gps_seconds                 (#PCDATA)>
<!ELEMENT   apMACAddress                (#PCDATA)>
<!ELEMENT   apTransmitPower             (#PCDATA)>
<!ELEMENT   apAntennaGain               (#PCDATA)>
<!ELEMENT   apSignaltoNoise             (#PCDATA)>
<!ELEMENT   apDeviceType                EMPTY>
<!ATTLIST   apDeviceType
            type (WLAN802-11A |         #REQUIRED>
            WLAN802-11B | WLAN802-
            11G)
<!ELEMENT   apSignalStrength            (#PCDATA)>
<!ELEMENT   apChannelFrequency          (#PCDATA)>
<!ELEMENT   apRoundTripDelay            (rtdvalue?, rtdunits?, rtdaccuracy?)>
<!ELEMENT   rtdvalue                    (#PCDATA)>
<!ELEMENT   rtdunits                    (#PCDATA)>
<!ELEMENT   rtdaccuracy                 (#PCDATA)>
<!ELEMENT   setTransmitPower            (#PCDATA)>
```

```
<!ELEMENT   setAntennaGain              (#PCDATA)>
<!ELEMENT   setSignaltoNoise            (#PCDATA)>
<!ELEMENT   setSignalStrength           (#PCDATA)>
<!ELEMENT   apReportedLocation          (locationEncodingDescriptor?, locationData?)>
<!ELEMENT   locationEncodingDescripto   EMPTY>
            r
<!ATTLIST   locationEncodingDescripto
            r
            type (LCI | ASN1)           #REQUIRED>
<!ELEMENT   locationData                (locationAccuracy?, locationValue?)>
<!ELEMENT   locationAccuracy            (#PCDATA)>
<!ELEMENT   locationValue               (#PCDATA)>
```

Note: This information may be considered operator sensitive

7.2.8 Roaming Context and Privacy Element Definitions

```
<!-- RLP_CTXT -->
<!--
RLP V1.2 Document Type Definition

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RLP is an XML language. Typical usage:
   <?xml version="1.0"?>
   <!DOCTYPE rlp_svc_xxx PUBLIC "-//OMA//DTD {abbrev x.y}//EN"
             "http://www.openmobilealliance.org/DTD/{filename}"
             [<?oma-{ref}-ver supported-versions="{versions}"?>]>
   <rlp_svc_xxx>
      ...
   </rlp_svc_xxx>

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http://www.openmobilealliance.org/
-->
<!ELEMENT    client                     (servicetype, id?, serviceid?,  requestmode?, clientname?,
                                        pseudoid?, poi?)>
<!ATTLIST    client
             type (1 | 2 | 3)           "1">
<!ELEMENT    id                         (#PCDATA)>
<!ELEMENT    requestor                  (#PCDATA)>
<!ATTLIST    requestor
             type (MSISDN | IMSI |      "MSISDN">
             NAME | E-MAIL | URL |
             SIPURL | IMS | MDN | ASID
             | ASPID)
<!ELEMENT    pwd                        (#PCDATA)>
<!ELEMENT    serviceid                  (#PCDATA)>
<!ELEMENT    requestmode                (requestor | session)?>
<!ATTLIST    requestmode
             type (ACTIVE | PASSIVE)    "PASSIVE">
<!ELEMENT    locationserver             (id, pwd?)>
<!ELEMENT    clientname                 (#PCDATA)>
<!ELEMENT    serving_node_action        EMPTY>
<!ATTLIST    serving_node_action
             passive_type               #REQUIRED
             (POSITION_NOT_ALLOWED |
             POSITION |
             NOTIFY_AND_POSITION |
             POSITION_IF_NOT_DISALLOWE
             D | POSITION_IF_ALLOWED)
             active_type                "POSITION_NOT_ALLOWED">
             (POSITION_NOT_ALLOWED |
             POSITION |
             NOTIFY_AND_POSITION |
             POSITION_IF_NOT_DISALLOWE
             D | POSITION_IF_ALLOWED)
<!ELEMENT    poi                        EMPTY>
```

```
<!ATTLIST    poi
             flag (ON | OFF)            "OFF">
<!ELEMENT    pseudoid                   (#PCDATA)>
<!ELEMENT    servicetype                (#PCDATA)>
<!ELEMENT    supported_shapes           EMPTY>
<!ATTLIST    supported_shapes
             Point  (NO | YES)          "NO"
             LineString (NO | YES)      "NO"
             Polygon (NO | YES)         "NO"
             Box (NO | YES)             "NO"
             CircularArea (NO | YES)    "NO"
             CircularArcArea (NO |      "NO"
             YES)
             EllipticalArea (NO | YES)  "NO"
             MultiLineString (NO |      "NO"
             YES)
             MultiPoint (NO | YES)      "NO"
             MultiPolygon (NO | YES)    "NO"
             LinearRing (NO | YES)      "NO"
             Altitude (NO | YES)        "NO">
```

7.2.9 SUPL Element Definitions

```
<!-- RLP_SUPL -->
<!--
RLP V1.2 Document Type Definition

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RLP is an XML language. Typical usage:
   <?xml version="1.0"?>
   <!DOCTYPE rlp_svc_init PUBLIC "-//OMA//DTD {abbrev x.y}//EN"
             "http://www.openmobilealliance.org/DTD/{filename}"
             [<?oma-{ref}-ver supported-versions="{versions}"?>]>
   <rlp_svc_init>
      ...
   </rlp_svc_init>

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-->

<!ELEMENT   supl_message               (#PCDATA)>
<!ELEMENT   supl_session_id            (#PCDATA)>
<!ATTLIST   supl_session_id
            notif_mode                 "NORMAL">
            (BASED_ON_LOCATION |
            NORMAL)
<!ELEMENT   supl_key_refresh           (spcsetkey, rand, slpfqdn, spcset_keylifetime)>
<!ELEMENT   spcsetkey                  (#PCDATA)>
<!ELEMENT   rand                       (#PCDATA)>
<!ELEMENT   slpfqdn                    (#PCDATA)>
<!ELEMENT   spcset_keylifetime         (#PCDATA)>
<!ELEMENT   area_info                  (#PCDATA)>
```

7.3 Service Layer Definitions

Service layer definitions specific to inter-Location Server interface are covered in this chapter. Additional information regarding service layer definitions is found in [OMA-MLP].

7.3.1 Header Components

The general outline of the header in MLP location request is given in [OMA-MLP]. The specifics for the inter-Location Server interfaces are covered in this section.

7.3.1.1 Roaming Header DTD

```
<!-- RLP_HDR -->
<!-- RLP V1.2 Document Type Definition

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RLP is an XML language. Typical usage:
   <?xml version="1.0"?>
   <!DOCTYPE rlp_svc_init PUBLIC "-//OMA//DTD {abbrev x.y}//EN"
             "http://www.openmobilealliance.org/DTD/{filename}"
             [<?oma-{ref}-ver supported-versions="{versions}"?>]>
   <rlp_svc_init>
      ...
   </rlp_svc_init>

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http://www.openmobilealliance.org/
-->
<!ELEMENT   rlp_hdr         (locationserver, client?, serving_node_action?, supported_shapes?,
                             net_param?)>
<!ATTLIST   rlp_hdr
            ver CDATA       #FIXED "1.2.0">
```

Example 7.3.1.1-1: ASP as Initiator

```
<rlp_svc_init>
  <rlp_hdr ver="1.2.0">
    <locationserver>
      <id>461018768787</id>
      <pwd>remoteLocationServer1</pwd>
    </locationserver>
    <client>
      <id>theasp</id>
      <serviceid>0005</serviceid>
      <requestmode type="PASSIVE"/>
      <clientname>TheClientName</clientname>
      <pseudoid>358401234567</pseudoid>
    </client>
    <net_param>
       <gsm_net_param>
          <neid>
             <vmscid capability="4">
                    <cc>46</cc>
                    <ndc>10</ndc>
                    <vmscno>28544781612</vmscno>
             </vmscid>
          </neid>
          <imsi>217567810164</imsi>
       </gsm_net_param>
    </net_param>
  </rlp_hdr>
...
</rlp_svc_init>
```

Example 7.3.1.1-2: MS as Initiator

```
<rlp_svc_init>
```

```
      <rlp_hdr ver="1.2.0">
         <locationserver>
            <id>461018768787</id>
            <pwd>remoteLocationServer1</pwd>
         </locationserver>
         <client>
            <id>theasp</id>
            <serviceid>0005</serviceid>
            <requestmode type="ACTIVE"/>
            <clientname>TheClientName</clientname>
            <pseudoid>358401234567</pseudoid>
         </client>
         <net_param>
            <gsm_net_param>
               <neid>
                  <vmscid capability="4">
                         <cc>46</cc>
                         <ndc>10</ndc>
                         <vmscno>28544781612</vmscno>
                  </vmscid>
               </neid>
               <imsi>217567810164</imsi>
            </gsm_net_param>
         <net_param>
      </rlp_hdr>
   ...
   </rlp_svc_init>
```

7.3.2 Standard Roaming Location Immediate Service

This is a standard service for requesting the location of one Mobile Subscriber while roaming. The service is used when a location response is required immediately (within a set time). This service may be initiated either synchronously or asynchronously.

The service consists of the following messages:

- Standard Roaming Location Immediate Request
- Standard Roaming Location Immediate Answer
- Standard Roaming Location Immediate Report

The Standard Roaming Location Immediate Service SHALL consist of a Standard Roaming Location Immediate Request followed by one Standard Roaming Location Immediate Answer and zero or one OPTIONAL Standard Roaming Location Immediate Reports. Standard Location Immediate Reports can only be returned by Location Server if the attribute “res_type” is set to “ASYNC” by the Location Server.

The following message flow encapsulates this service:

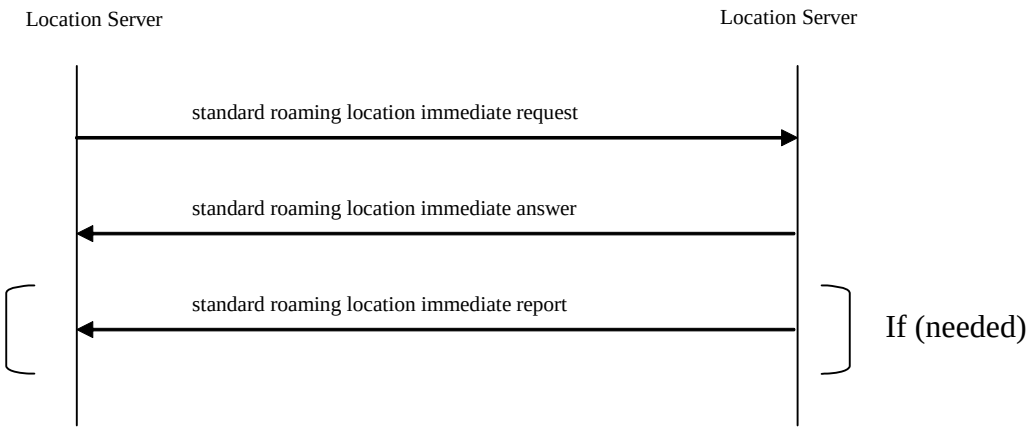

Figure 2: Standard Roaming Location Immediate

Note: Multiple Standard Roaming Location Immediate Reports can occur when the request authorized the sending of intermediate location information: the results are reported back to the location server, increasing in accuracy each time until the requested QoP is reached.

7.3.2.1 Standard Roaming Location Immediate Request DTD

```
<!-- RLP_SRLIR -->
<!--
RLP V1.2 Document Type Definition

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RLP is an XML language. Typical usage:
   <?xml version="1.0"?>
   <!DOCTYPE rlp_svc_init PUBLIC "-//OMA//DTD {abbrev x.y}//EN"
             "http://www.openmobilealliance.org/DTD/{filename}"
             [<?oma-{ref}-ver supported-versions="{versions}"?>]>
   <rlp_svc_init>
      ...
   </rlp_svc_init>

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-->

<!ENTITY    % extension.param          "">

<!ELEMENT   srlir                     (msid, codeword?, eqop?, geo_info?, loc_type?, prio?,
                                       pushaddr?,service_coverage?, MotionStateRequest?
                                       %extension.param;)>
<!ATTLIST   srlir
            ver CDATA                 #FIXED "1.2.0"
            res_type (SYNC | ASYNC)   "SYNC"
            recv_role (HLS | VLS)     #REQUIRED>
```

Example 7.3.2.1-1

```
<srlir ver="1.2.0" res_type="SYNC" recv_role="HLS">
        <msid>461018765712</msid>
        <eqop>
                <resp_req type="LOW_DELAY"/>
                <hor_acc>1000</hor_acc>
        </eqop>
        <geo_info>
                <CoordinateReferenceSystem>
                        <Identifier>
                           <code>4004</code>
                           <codeSpace>EPSG</codeSpace>
                           <edition>6.1</edition>
                        </Identifier>
                 </CoordinateReferenceSystem>
        </geo_info>
        <loc_type type="CURRENT_OR_LAST" />
        <prio type="HIGH" />
</srlir>
```

7.3.2.2 Standard Roaming Location Immediate Answer DTD

```
<!-- RLP_SRLIA -->
<!--
RLP V1.2 Document Type Definition

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RLP is an XML language. Typical usage:
   <?xml version="1.0"?>
   <!DOCTYPE rlp_svc_result PUBLIC "-//OMA//DTD {abbrev x.y}//EN"
             "http://www.openmobilealliance.org/DTD/{filename}"
             [<?oma-{ref}-ver supported-versions="{versions}"?>]>
   <roaming_svc_result>
      ...
   </roaming_svc_result>

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http://www.openmobilealliance.org/
-->

<!ENTITY    % extension.param         "">

<!ELEMENT   srlia                    ((pos | req_id | (result, add_info?)) %extension.param;)>
<!ATTLIST   srlia
            ver CDATA                #FIXED "1.2.0">
```

Example 7.3.2.2-1: Successful positioning of roaming subscriber (Synchronous response)

```
<srlia ver="1.2.0" >
  <pos>
    <msid>461011334411</msid>
    <pd>
      <time utc_off="+0200">20020623134453</time>
      <shape>
        <CircularArea srsName="www.epsg.org#4326">
             <coord>
              <X>30 16 28.308N</X>
              <Y>45 15 33.444E</Y>
             </coord>
             <radius>240</radius>
        </CircularArea>
      </shape>
    </pd>
  </pos>
</srlia>
```

Example 7.3.2.2-2: Asynchronous response

```
<srlia ver="1.2.0" >
  <req_id>25267</req_id>
</srlia>
```

7.3.2.3 Standard Roaming Location Immediate Report DTD

```
<!-- RLP_SRLIREP -->
<!--
RLP V1.2 Document Type Definition

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RLP is an XML language. Typical usage:
   <?xml version="1.0"?>
   <!DOCTYPE rlp_svc_result PUBLIC "-//OMA//DTD {abbrev x.y}//EN"
             "http://www.openmobilealliance.org/DTD/{filename}"
             [<?oma-{ref}-ver supported-versions="{versions}"?>]>
   <rlp_svc_result>
      ...
   </rlp_svc_result>

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-->

<!ENTITY    % extension.param         "">

<!ELEMENT   srlirep                  (req_id, pos %extension.param;)>
<!ATTLIST   srlirep
            ver CDATA                #FIXED "1.2.0">
```

Example 7.3.2.3-1: Asynchronous Report

```
<srlirep ver="1.2.0">
  <req_id>25267</req_id>
  <pos>
    <msid>461011334411</msid>
    <pd>
      <time utc_off="+0300">20020813010423</time>
      <shape>
        <CircularArea srsName="www.epsg.org#4326">
          <coord>
            <X>35 03 28.244N</X>
            <Y>135 47 08.711E</Y>
          </coord>
          <radius>15</radius>
        </CircularArea>
      </shape>
    </pd>
  </pos>
</srlirep>
```

7.3.3 Triggered Roaming Location Reporting Service

The triggered roaming location reporting service is used when an application wants to get the position of MS to be tracked while roaming. The triggers could be:

- The periodicity of reporting defined by an interval time.
- An MS action, defined as the event “UE available” in 3GPP [23.271].
- A Change of Area, defined as the event “change of area” in 3GPP [23.271].
- An Velocity Event , defined as the event “Velocity Event” in [SUPL 3.0].

- A Distance Event, that is based on the the distances between the target MS and one or more reference objects.
- An Equidistance Event, that is based on the distance travelled from the last report.

The report will be triggered when one of the pre-defined MS's actions occurred or the time interval elapses. If reporting is based on an interval the reporting can be also be defioned to utilize quasirealtime and batch reporting modes. In quasirealtime mode, reports are not sent if the target has become unavailable but are instead sent at later time when location information has become available. In batch reporting modes the request includes a condition when reports shall be sent. The condition can be a number of measurement, a time expressed in minutes or when the service terminates.

The service consists of the following messages:

- Triggered Roaming Location Reporting Request
- Triggered Roaming Location Reporting Answer
- Triggered Roaming Location Report
- Triggered Roaming Location Report Stop Request
- Triggered Roaming Location Reporting Stop Answer
- Triggered Roaming Location Reporting Pause Report
- Triggered Roaming Location Reporting Query Request
- Triggered Roaming Location Reporting Query Answer
- Triggered Roaming Location Query Report

The Triggered Roaming Location Reporting Service SHALL consist of a Triggered Roaming Location Reporting Request followed by one Triggered Roaming Location Reporting Answer and zero, one or more OPTIONAL Triggered Roaming Location Reports. When it is assumed that only one location report is to be sent but it is unfeasible to include all information in one Triggered Location Report the information MAY be segmented into multiple Triggered Location Reports. The segmentation is indicated by a "more" attribute.

The Triggered Roaming Location Reporting Service MAY also include a Triggered Roaming Location Reporting Stop Request that SHALL be followed by one Triggered Roaming Location Reporting Stop Answer. Additionally a Triggered Roaming Location Reporting Stop Answer MAY be sent without preceeding Triggered Roaming Location Reporting Stop Request.

The Triggered Roaming Location Reporting Service MAY also include one or more Triggered Location Reporting Pause Report. This message informs the LCS Client that the reporting has been paused or resumed.

The Triggered Roaming Location Reporting Service MAY also include a Triggered Roaming Location Reporting Query Request that SHALL be followed by one Triggered Roaming Location Reporting Query Answer and one or more Triggered Roaming Location Query Reports. This Triggered Roaming Location Reporting Query Request MAY allow the LCS Client to query the Location Server for reporting of all still active trigger reguests related to the LCS Client.

The following message flow encapsulates this service:

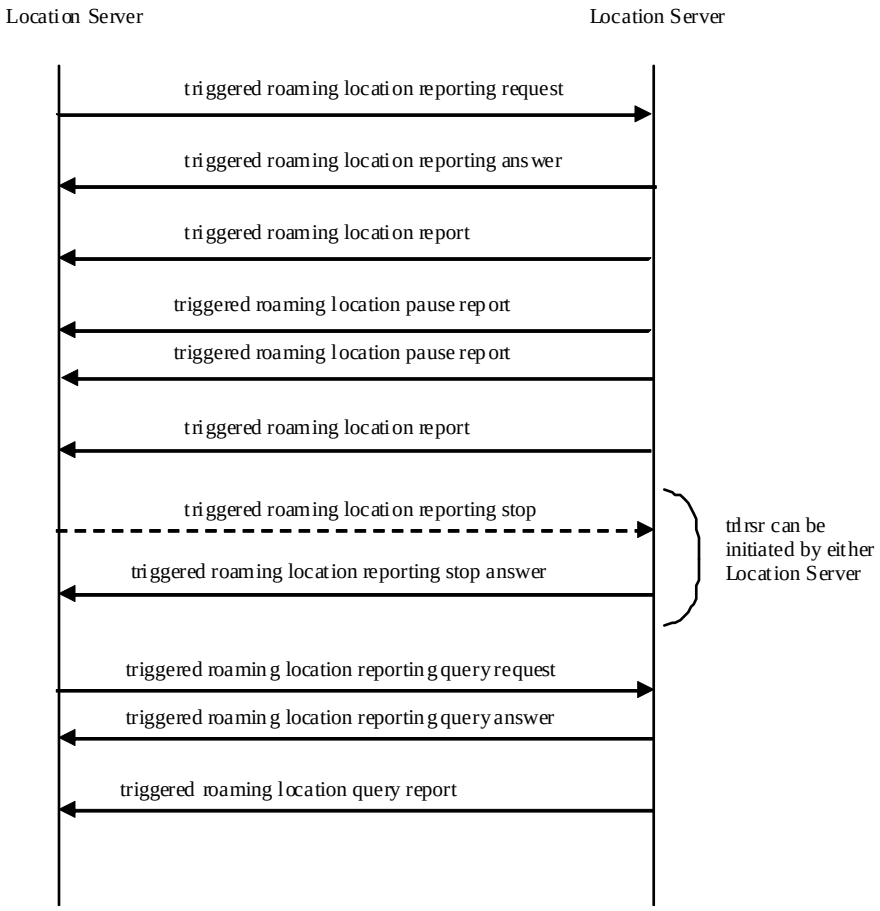

Figure 3: Triggered Roaming Location Reporting

In addition, if a target MS roams from Visited Location Server A to Visited Location Server B, the Home Location Server should release the resources in Location Server A and start a new triggered location service with Visited Location Server B as appropriate.

For a roaming case of triggered location service, the lcs_ref SHALL be assigned and maintained by the Home Location Server. The lcs_ref SHALL be sent to Visited Location Server in the Triggered Roaming Location Reporting Request. In addition, the lcs_ref MAY be sent to the Requesting Location Server in the Triggered Roaming Location Reporting Answer. When the report is returned, the lcs_ref MAY be included in order to correlate the previous request. In all cases the Location Server SHALL include the rlp_hdr element and SHALL assign a unique value for the req_id element.

If the network unilaterally decides to terminate the location reporting, the stop reporting information SHALL be carried in a trlrep.

The cancellation of triggered roaming location reporting request could be initiated by any Location Server for some reasons, for example such as privacy profile update. A triggered roaming location reporting stop request MAY be sent by either Location Server.A trlrsa sent without a preceding trlsr is also supported.

7.3.3.1 Triggered Roaming Location Reporting Request DTD

```
<!-- RLP_TRLRR -->
<!--
RLP V1.2 Document Type Definition

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RLP is an XML language. Typical usage:
   <?xml version="1.0"?>
   <!DOCTYPE rlp_svc_init PUBLIC "-//OMA//DTD {abbrev x.y}//EN"
             "http://www.openmobilealliance.org/DTD/{filename}"
             [<?oma-{ref}-ver supported-versions="{versions}"?>]>
   <rlp_svc_init>
      ...
   </rlp_svc_init>

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http://www.openmobilealliance.org/
-->

<!ENTITY    % extension.param         "">

<!ELEMENT   trlrr                    (msid, lcs_ref?, codeword?, interval?, start_time?,
                                      stop_time?, duration?, tlrr_event?, qop?, geo_info?,
                                      pushaddr?, loc_type?, prio? %extension.param;)>
<!ATTLIST   trlrr
            ver CDATA                #FIXED "1.2.0"
            recv_role (HLS | VLS)    #REQUIRED>
```

The following rules apply to the use of ‘start_time’, ‘stop_time’, ‘interval’ , ’duration’, ‘tlrr_event’and ’loc_type’:

- TLRR with ‘interval’ SHALL be interpreted as a request for periodic location reports, and TLRR with ‘tlrr_event’ SHALL be interpreted as a request for a location report on the occurrence of a specific event. ‘interval’ and ‘tlrr_event’ MAY be combined for combined periodic and event based location request. When neither ‘interval’ nor ‘tlrr_event’ is specified in TLRR, the Location Server MUST reject the request with an error indication ‘106’ to the client.
- If no START_TIME is specified reporting SHALL start immediately.
- If no STOP_TIME is specified the reporting SHOULD occur until explicitly canceled with ‘Triggered Roaming Location Stop Request’ or a time out occurs (depending on system configuration). Timeout MAY be reported to the LCS client by 'time_remaining' in triggered roaming location report.
- If STOP_TIME and Duration are both presented in one request, the Location Server MUST reject the request with an error indication ‘110’ to the client.
- If START_TIME is ‘older’ than current time the Location Server MUST reject the request with an error indication ‘110’ to the client.
- If STOP_TIME is ‘older’ than current time the Location Server MUST reject the request with an error indication ‘110’ to the client.
- If STOP_TIME is earlier than START_TIME the implementation MUST reject the request with an error indication ‘110’ to the client.
- If STOP_TIME is equal to START_TIME the Location Server MUST return a single location report to the client at the specified time. Any interval specified MUST be ignored.
- If Duration is specified as zero the Location Server MUST return a single location report to the client at the specified time. Any interval specified MUST be ignored.
- If Loc_type is specified as LAST the Location Server MUST evaluate the trigger criteria based on stored location information.

Example 7.3.3.1-1: TRLRR for a location report on the occurrence of a MS_AVAIL event after a specified time.

```
<trlrr ver="1.2.0" recv_role="HLS">
      <msid>461011678298</msid>
    <start_time utc_off="+0300">20021003112700</start_time>
  <trlrr_event>
<ms_action type="MS_AVAIL"/>
</trlrr_event>
  <qop>
    <hor_acc>100</hor_acc>
  </qop>
  <geo_info>
    <CoordinateReferenceSystem>
      <Identifier>
        <code>4326</code>
        <codeSpace>EPSG</codeSpace>
        <edition>6.1</edition>
      </Identifier>
    </CoordinateReferenceSystem>
  </geo_info>
  <pushaddr>
    <url>http://location.application.com</url>
  </pushaddr>
  <loc_type type="CURRENT" />
  <prio type="HIGH" />
</trlrr>
```

Example 7.3.3.1-2: TRLRR for a change_area report on the occurrence of a MS_ENTERING event

```
<trlrr ver="1.2.0" recv_role="HLS">
      <msid>461011678298</msid>
      <lcs_ref>50</lcs_ref>
    <tlrr_event>
    <change_area type="MS_ENTERING" loc_estimates="TRUE">
      <target_area>
        <name_area>Seoul</name_area>
      </target_area>
    </change_area>
  </tlrr_event>
  <qop>
    <hor_acc>100</hor_acc>
  </qop>
  <geo_info>
    <CoordinateReferenceSystem>
      <Identifier>
        <code>4326</code>
        <codeSpace>EPSG</codeSpace>
        <edition>6.1</edition>
      </Identifier>
    </CoordinateReferenceSystem>
  </geo_info>
  <pushaddr>
    <url>http://location.application.com</url>
  </pushaddr>
  <loc_type type="CURRENT" />
  <prio type="HIGH" />
</trlrr>
```

Example 7.3.3.1-3: TRLRR for a change_area report on the occurrence of a MS_WITHIN_AREA within a geographical area.

```
<trlrr ver="1.2.0" recv_role="HLS">
  <msid>461011678298</msid>
  <lcs_ref>50</lcs_ref>
  <tlrr_event>
    <change_area type="MS_WITHIN_AREA" loc_estimates="FALSE">
      <target_area>
        <shape>
```

```
            <CircularArea srsName="www.epsg.org#4326">
              <coord>
                <X>35 35 24.139N</X>
                <Y>139 35 24.754E</Y>
              </coord>
              <radius>15</radius>
            </CircularArea>
          </shape>
        </target_area>
        <no_of_reports>10</no_of_reports>
      </change_area>
    </tlrr_event>
    <pushaddr>
        <url>http://location.application.com</url>
    </pushaddr>
  </trlrr>
```

7.3.3.2 Triggered Roaming Location Reporting Answer DTD

```
<!-- RLP_TRLRA -->
<!--
RLP V1.2 Document Type Definition

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RLP is an XML language. Typical usage:
   <?xml version="1.0"?>
   <!DOCTYPE rlp_svc_result PUBLIC "-//OMA//DTD {abbrev x.y}//EN"
             "http://www.openmobilealliance.org/DTD/{filename}"
             [<?oma-{ref}-ver supported-versions="{versions}"?>]>
   <rlp_svc_result>
      ...
   </rlp_svc_result>

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http://www.openmobilealliance.org/
-->

<!ENTITY    % extension.param         "">

<!ELEMENT   trlra                    (((req_id, lcs_ref?, area_id_list?) | (result, add_info?))
                                     %extension.param;)>
<!ATTLIST   trlra
            ver CDATA                #FIXED "1.2.0">
```

Example 7.3.3.2-1: TRLRA if corresponding TRLRR was successful

```
  <trlra ver="1.2.0">
    <req_id>25293</req_id>
  </trlra>
```

Example 7.3.3.1-2: TRLRA if corresponding TRLRR was in error

```
  <trlra ver="1.2.0">
    <result resid="4">UNKNOWN SUBSCRIBER</result>
  </trlra>
```

7.3.3.3 Triggered Roaming Location Report DTD

```
<!-- RLP_TRLREP -->
<!--
RLP V1.2 Document Type Definition

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RLP is an XML language. Typical usage:
   <?xml version="1.0"?>
   <!DOCTYPE rlp_svc_result PUBLIC "-//OMA//DTD {abbrev x.y}//EN"
             "http://www.openmobilealliance.org/DTD/{filename}"
             [<?oma-{ref}-ver supported-versions="{versions}"?>]>
   <rlp_svc_result>
      ...
   </rlp_svc_result>

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http://www.openmobilealliance.org/
-->

<!ENTITY    % extension.param         "">

<!ELEMENT   trlrep                   (req_id, lcs_ref?, trl_pos+, time_remaining?
                                     %extension.param;)>
<!ATTLIST   trlrep
            ver CDATA                #FIXED "1.2.0"
            more (YES | NO)          "NO">
```

The attribute 'more' set to YES indicates that the location report is segmented into several tlrep and more tlrep will follow. The last tlrep within a location report will have attriute 'more' set to NO (explicit or by default).

Example 7.3.3.3-1: Successful positioning of triggered location report

```
<trlrep ver="1.2.0">
  <req_id>25267</req_id>
        <lcs_ref>50</lcs_ref>
  <trl_pos trl_trigger="MS_AVAIL">
    <msid>461011678298</msid>
    <pd>
      <time utc_off="+0300">20020813010423</time>
      <shape>
        <CircularArea srsName="www.epsg.org#4326">
          <coord>
            <X>35 35 24.139N</X>
            <Y>139 35 24.754E</Y>
          </coord>
          <radius>15</radius>
        </CircularArea>
      </shape>
    </pd>
  </trl_pos>
  <time_remaining>00010000</time_remaining>
</trlrep>
```

Example 7.3.3.3-2: Cancellation of triggered location report

```
<trlrep ver="1.2.0">
  <req_id>25267</req_id>
        <lcs_ref>50</lcs_ref>
  <trl_pos trl_trigger="MS_AVAIL">
    <msid>461011678298</msid>
    <poserr>
```

```
<result resid="114"> CANCELLATION OF TRIGGERED LOCATION REQUEST</result>
<time utc_off="+0200">20041007110237</time>
    </poserr>
  </trl_pos>
</trlrep>
```

7.3.3.4 Triggered Roaming Location Reporting Stop Request DTD

```
<!-- RLP_TRLRSR -->
<!--
RLP V1.2 Document Type Definition

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RLP is an XML language. Typical usage:
   <?xml version="1.0"?>
   <!DOCTYPE rlp_svc_init PUBLIC "-//OMA//DTD {abbrev x.y}//EN"
             "http://www.openmobilealliance.org/DTD/{filename}"
             [<?oma-{ref}-ver supported-versions="{versions}"?>]>
   <rlp_svc_init>
      ...
   </rlp_svc_init>

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-->

<!ENTITY    % extension.param         "">

<!ELEMENT   trlrsr                   (req_id, lcs_ref? %extension.param;)>
<!ATTLIST   trlrsr
            ver CDATA                #FIXED "1.2.0"
            Recv_role (HLS | VLS)    #REQUIRED>
```

Example 7.3.3.4-1

```
<trlrsr ver="1.2.0" recv_role="HLS">
  <req_id>25293</req_id>
  <lcs_ref>50</lcs_ref>
</trlrsr>
```

7.3.3.5 Triggered Roaming Location Reporting Stop Answer DTD

```
<!-- RLP_TRLRSA -->
<!--
RLP V1.2 Document Type Definition

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RLP is an XML language. Typical usage:
   <?xml version="1.0"?>
   <!DOCTYPE rlp_svc_result PUBLIC "-//OMA//DTD {abbrev x.y}//EN"
             "http://www.openmobilealliance.org/DTD/{filename}"
             [<?oma-{ref}-ver supported-versions="{versions}"?>]>
   <rlp_svc_result>
      ...
   </rlp_svc_result>

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-->

<!ENTITY    % extension.param         "">

<!ELEMENT   trlrsa                   ((req_id | (result, add_info?)) %extension.param;)>
<!ATTLIST   trlrsa
            ver CDATA                #FIXED "1.2.0">
```

Example 7.3.3.5-1

```
<trlrsa ver="1.2.0">
  <req_id>25293</req_id>
</trlrsa>
```

7.3.3.6 Triggered Roaming Location Reporting Pause Report DTD

```
<!-- RLP_TRLRPR -->
<!--
RLP V1.2 Document Type Definition

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RLP is an XML language. Typical usage:
   <?xml version="1.0"?>
   <!DOCTYPE rlp_svc_result PUBLIC "-//OMA//DTD {abbrev x.y}//EN"
             "http://www.openmobilealliance.org/DTD/{filename}"
             [<?oma-{ref}-ver supported-versions="{versions}"?>]>
   <roaming_svc_result>
      ...
   </roaming_svc_result>

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http://www.openmobilealliance.org/
-->
```

```
<!ENTITY    % extension.param          "">

<!ELEMENT   trlrpr                    (msid, req_id, lcs_ref? %extension.param;)>
<!ATTLIST   trlrpr
            ver CDATA                 #FIXED "1.2.0"
            cause (PAUSE | RESUME)    #REQUIRED>
```

The (optional) parameter 'lcs_ref' shall be sent to the LCS Client in case the Requesting Location Server receives it from Home Location Server.

Example

```
     <trlrpr ver="1.2.0" cause=”PAUSE”>
  <msid>461011678298</msid>
  <req_id>25293</req_id>
     </trlrpr>
```

7.3.3.7 Triggered Roaming Location Reporting Query Request DTD

```
<!-- RLP_TRLRQR -->
<!--
RLP V1.2 Document Type Definition

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RLP is an XML language. Typical usage:
   <?xml version="1.0"?>
   <!DOCTYPE rlp_svc_result PUBLIC "-//OMA//DTD {abbrev x.y}//EN"
             "http://www.openmobilealliance.org/DTD/{filename}"
             [<?oma-{ref}-ver supported-versions="{versions}"?>]>
   <roaming_svc_result>
      ...
   </roaming_svc_result>

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-->

<!ENTITY    % extension.param          "">

<!ELEMENT   trlrqr                    (pushaddr? %extension.param;)>
<!ATTLIST   trlrqr
            ver CDATA                 #FIXED "1.2.0">
```

Example

```
     <trlrqr ver="1.2.0" >
      </trlrqr>
```

7.3.3.8 Triggered Roaming Location Reporting Query Answer DTD

```
<!-- RLP_TRLRQA -->
```

```
<!—
RLP V1.2 Document Type Definition

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RLP is an XML language. Typical usage:
   <?xml version="1.0"?>
   <!DOCTYPE rlp_svc_result PUBLIC "-//OMA//DTD {abbrev x.y}//EN"
             "http://www.openmobilealliance.org/DTD/{filename}"
             [<?oma-{ref}-ver supported-versions="{versions}"?>]>
   <roaming_svc_result>
      ...
   </roaming_svc_result>

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-->

<!ENTITY    % extension.param         "">

<!ELEMENT   trlrqa                   ((query_id | (result, add_info?)) %extension.param;)>
<!ATTLIST   trlrqa
            ver CDATA                #FIXED "1.2.0">
```

Example

```
<trlrqa ver="1.2.0" >
   <query_id>25293</query_id>
</trlrqa>
```

7.3.3.9 Triggered Roaming Location Query Report DTD

```
<!-- RLP_TRLQREP -->
<!--
RLP V1.2 Document Type Definition

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   <?xml version="1.0"?>
   <!DOCTYPE rlp_svc_result PUBLIC "-//OMA//DTD {abbrev x.y}//EN"
             "http://www.openmobilealliance.org/DTD/{filename}"
             [<?oma-{ref}-ver supported-versions="{versions}"?>]>
   <rlp_svc_result>
      ...
   </rlp_svc_result>

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-->

<!ENTITY    % extension.param         "">

<!ELEMENT   trlqrep                  (query_id, trigger_data* %extension.param;)>
<!ATTLIST   trlqrep
            ver CDATA                #FIXED "1.2.0"
```

```
            last (YES | NO)           #REQUIRED>
```

If there are no triggers to report the element “trigger_data” SHALL be absent.

Example

```
<trlqrep ver="1.2.0" last=”YES”>
  <query_id>25267</query_id>
  <trigger_data>
      <req_id>25283</req_id>
      <msid>461011678298</msid>
      <msid>461011678299</msid>
  </trigger_data>
  <trigger_data>
      <req_id>765192</req_id>
      <msid>461011678300</msid>
      <msid>461011678301</msid>
  </trigger_data>
</trlqrep>
```

7.3.4 Emergency Roaming Location Immediate Service

When Mobile Number Portability is supported the MSISDN is not always enough to deterministically determine the HPLMN of the subscriber.

The emergency roaming location immediate service is used to retrieve the position of a mobile subscriber when Mobile Number Portability is in use. In this case the MSISDN points to the original network before the subscriber changed his/her operator. The purpose of this service is to transparently forward the location request to the network currently serving the subscriber.

The service consists of the following messages:

- Emergency Roaming Location Immediate Request
- Emergency Roaming Location Immediate Answer

The Emergency Roaming Location Immediate Service SHALL consist of a Emergency Roaming Location Immediate Request followed by one Emergency Roaming Location Immediate Answer.

The following message flow encapsulates this service:

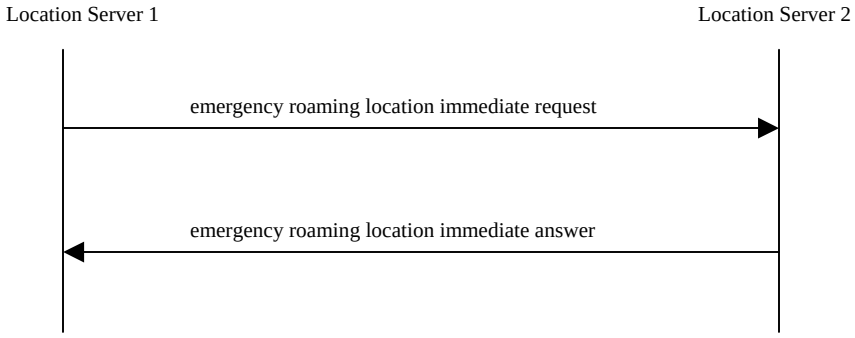

Figure 4: Emergency Roaming Location Immediate

7.3.4.1 Emergency Roaming Location Immediate Request DTD

```
<!-- RLP_ERLIR -->
```

```
<!--
RLP V1.2 Document Type Definition

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RLP is an XML language. Typical usage:
   <?xml version="1.0"?>
   <!DOCTYPE rlp_svc_init PUBLIC "-//OMA//DTD {abbrev x.y}//EN"
             "http://www.openmobilealliance.org/DTD/{filename}"
             [<?oma-{ref}-ver supported-versions="{versions}"?>]>
   <rlp_svc_init>
      ...
   </rlp_svc_init>

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-->

<!ENTITY    % extension.param          "">

<!ELEMENT   erlir                     (msid, esrd?, esrk?, eqop?, geo_info?, loc_type?
                                      %extension.param;)>
<!ATTLIST   erlir
            ver CDATA                 #FIXED "1.2.0"
            recv_role (HLS | VLS)     #REQUIRED>
```

Example 7.3.4.1-1

```
<erlir ver="1.2.0" recv_role="HLS">
        <msid type="MSISDN">461011334411</msid>
        <geo_info>
                <CoordinateReferenceSystem>
                        <Identifier>
                           <code>4004</code>
                           <codeSpace>EPSG</codeSpace>
                           <edition>6.1</edition>
                        </Identifier>
                </CoordinateReferenceSystem>
        </geo_info>
        <loc_type type="CURRENT_OR_LAST"/>
  </erlir>
```

7.3.4.2 Emergency Location Immediate Answer DTD

```
<!-- RLP_ERLIA -->
```

```
<!--
RLP V1.2 Document Type Definition

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RLP is an XML language. Typical usage:
   <?xml version="1.0"?>
   <!DOCTYPE rlp_svc_result PUBLIC "-//OMA//DTD {abbrev x.y}//EN"
             "http://www.openmobilealliance.org/DTD/{filename}"
             [<?oma-{ref}-ver supported-versions="{versions}"?>]>
   <rlp_svc_result>
      ...
   </rlp_svc_result>

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-->

<!ENTITY    % extension.param         "">

<!ELEMENT   erlia                    ((eme_pos | (result, add_info?)) %extension.param;)>
<!ATTLIST   erlia
            ver CDATA                #FIXED "1.2.0">
```

Example 7.3.4.2-1

```
<erlia ver="1.2.0">
  <eme_pos>
    <msid type="MSISDN">461011334411</msid>
    <pd>
      <time utc_off="+0300">20020623134453</time>
      <shape>
        <CircularArea srsName="www.epsg.org#4326">
          <coord>
            <X>30 24 43.53N</X>
            <Y>45 28 09.534W</Y>
          </coord>
          <radius>15</radius>
        </CircularArea>
      </shape>
    </pd>
    <esrk>7839298236</esrk>
  </eme_pos>
</erlia>
```

7.3.5 Standard SUPL Roaming Location Immediate Service

This is a SUPL standard service for using the Lr reference point to transfer SUPL messages between two SUPL enabled networks to determine the location of one Mobile Subscriber while roaming. The service is used when a location response is required immediately (within a set time).

The service consists of the following messages:

- Standard SUPL Roaming Location Immediate Request
- Standard SUPL Roaming Location Immediate Answer
- Standard SUPL Roaming Position

The Standard SUPL Roaming Location Immediate Service SHALL consist of a Standard SUPL Roaming Location Immediate Request followed by one Standard SUPL Roaming Location Immediate Answer and zero, one or more OPTIONAL Standard SUPL Roaming Positions.

The following message flow encapsulates this service:

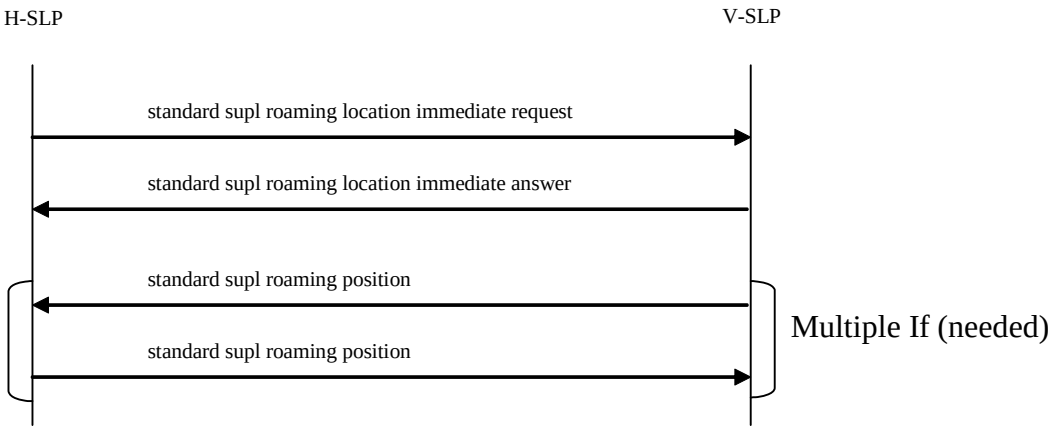

Figure 5: Standard SUPL Roaming Location Immediate

Note: Multiple Standard SUPL Roaming Position messages can occur when the request authorized the sending of intermediate location information: the results are reported back to the location server, increasing each time in accuracy, until the requested QoP is reached.

7.3.5.1 Standard SUPL Roaming Location Immediate Request DTD

```
<!-- RLP_SSRLIR -->
<!--
RLP V1.2 Document Type Definition

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RLP is an XML language. Typical usage:
   <?xml version="1.0"?>
   <!DOCTYPE rlp_svc_init PUBLIC "-//OMA//DTD {abbrev x.y}//EN"
             "http://www.openmobilealliance.org/DTD/{filename}"
             [<?oma-{ref}-ver supported-versions="{versions}"?>]>
   <rlp_svc_init>
      ...
   </rlp_svc_init>

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-->

<!ENTITY    % extension.param   "">

<!ELEMENT   ssrlir              (supl_session_id, supl_message, area_info?
                                %extension.param;)>
<!ATTLIST   ssrlir
            ver CDATA           #FIXED "1.2.0">
```

Example 7.3.5.1-1

```
<ssrlir ver="1.2.0">
       <supl_session_id>ABH98560</supl_session_id>
       <supl_message>ABH98560NV458670543876047856B0435678B03468570V68735406</supl_message>
</ssrlir>
```

7.3.5.2 Standard SUPL Roaming Location Immediate Answer DTD

```
<!-- RLP_SSRLIA -->
<!--
RLP V1.2 Document Type Definition

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RLP is an XML language. Typical usage:
   <?xml version="1.0"?>
   <!DOCTYPE rlp_svc_result PUBLIC "-//OMA//DTD {abbrev x.y}//EN"
             "http://www.openmobilealliance.org/DTD/{filename}"
             [<?oma-{ref}-ver supported-versions="{versions}"?>]>
   <roaming_svc_result>
      ...
   </roaming_svc_result>

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http://www.openmobilealliance.org/
-->

<!ENTITY    % extension.param        "">

<!ELEMENT   ssrlia                  (supl_session_id, result, add_info?, supl_message
                                    %extension.param;)>
<!ATTLIST   ssrlia
            ver CDATA               #FIXED "1.2.0">
```

Example 7.3.5.2-1: Successful positioning of roaming subscriber

```
<ssrlia ver="1.2.0">
    <supl_session_id>ABH98560</supl_session_id>
        <result resid="0">OK</result>
     <supl_message>SDH1030DAEGU20050115CYS0719CHEONGJU8570V68735406</supl_message>
</ssrlia>
```

7.3.5.3 Standard SUPL Roaming Position DTD

```
<!-- RLP_SSRP -->
<!--
RLP V1.2 Document Type Definition

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RLP is an XML language. Typical usage:
   <?xml version="1.0"?>
   <!DOCTYPE rlp_svc_init PUBLIC "-//OMA//DTD {abbrev x.y}//EN"
             "http://www.openmobilealliance.org/DTD/{filename}"
             [<?oma-{ref}-ver supported-versions="{versions}"?>]>
   <rlp_svc_init>
      ...
   </rlp_svc_init>

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-->

<!ENTITY    % extension.param        "">

<!ELEMENT   ssrp                    (supl_session_id, supl_message, supl_key_refresh?
                                    %extension.param;)>
<!ATTLIST   ssrp
            ver CDATA               #FIXED "1.2.0">
```

Example 7.3.5.3-1

```
<ssrp ver="1.2.0">
   <supl_session_id>ABH98560</supl_session_id>
   <supl_message>ABH97869786LUHGKSGDHFKSDFH85467POUIHG97697KHGKH</supl_message>
</ssrp>
```

7.3.6 Standard Roaming Location Reporting Service

This is a standard location reporting service when a mobile subscriber wants an LCS client to receive the MS location, i.e., in the MO-LR case, while the Mobile Subscriber is roaming.

The service consists of the following messages:

- Standard Roaming Location Report
- Standard Roaming Location Report Answer

The Standard Roaming Location Reporting Service SHALL consist of a Standard Roaming Location Report followed by one Standard Roaming Location Report Answer.

The following message flow encapsulates this service:

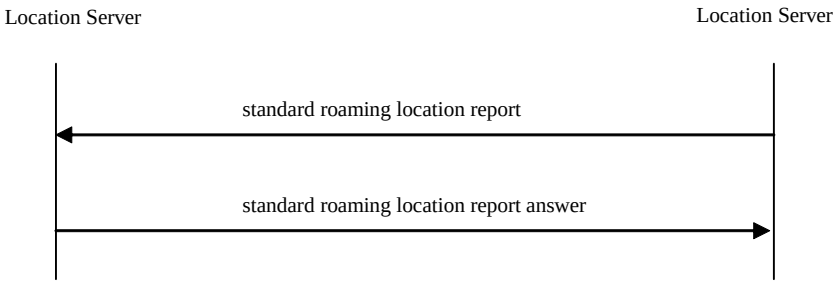

Figure 6: Standard Roaming Location Report

7.3.6.1 Standard Roaming Location Report DTD

```
<!-- RLP_SRLREP -->
<!--
RLP V1.2 Document Type Definition

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RLP is an XML language. Typical usage:
   <?xml version="1.0"?>
   <!DOCTYPE rlp_svc_result PUBLIC "-//OMA//DTD {abbrev x.y}//EN"
             "http://www.openmobilealliance.org/DTD/{filename}"
             [<?oma-{ref}-ver supported-versions="{versions}"?>]>
   <rlp_svc_result>
      ...
   </rlp_svc_result>

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http://www.openmobilealliance.org/
-->

<!ENTITY    % extension.param         "">

<!ELEMENT   srlrep                   (pos %extension.param;)>
<!ATTLIST   srlrep
            ver CDATA                #FIXED "1.2.0">
```

Example 7.3.6.1-1:

```
<srlrep ver="1.2.0">
  <pos>
    <msid>461011678298</msid>
    <pd>
      <time utc_off="+0300">20041031074711</time>
      <shape>
        <CircularArea srsName="www.epsg.org#4326">
          <coord>
            <X>35 35 24.139N</X>
            <Y>139 35 24.754E</Y>
          </coord>
          <radius>15</radius>
        </CircularArea>
      </shape>
    </pd>
  </pos>
</srlrep >
```

7.3.6.2 Standard Roaming Location Report Answer DTD

```
<!-- RLP_SRLRA -->
<!--
RLP V1.2 Document Type Definition

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RLP is an XML language. Typical usage:
   <?xml version="1.0"?>
   <!DOCTYPE rlp_svc_result PUBLIC "-//OMA//DTD {abbrev x.y}//EN"
             "http://www.openmobilealliance.org/DTD/{filename}"
             [<?oma-{ref}-ver supported-versions="{versions}"?>]>
   <roaming_svc_result>
      ...
   </roaming_svc_result>

Terms and conditions of use are available from the
Open Mobile Alliance Ltd. web site at
http://www.openmobilealliance.org/
-->

<!ENTITY    % extension.param         "">

<!ELEMENT   srlra                    (result, add_info? %extension.param;)>
<!ATTLIST   srlra
            ver CDATA                #FIXED "1.2.0">
```

Example 7.3.6.2-1: SRLRA in case the handling of corresponding SRLREP was successful

```
<srlra ver="1.2.0" >
  <result resid="0">OK</result>
</srlra>
```

Example 7.3.6.2-2: SRLRA in case the handling of corresponding SRLREP was in error

```
<srlra ver="1.2.0" >
  <result resid="4">UNKNOWN SUBSCRIBER</result>
  <add_info> the subscriber is not registered in the LCS Client</add_info>
</srlra>
```

7.3.7 General Error Message Definition

Error handling mechanism is described in [OMA-MLP].

8. Elements and attributes in DTD

Elements and attributes that are common with [OMA-MLP] are described in [OMA-MLP].

8.1 area_info

Description:	
Specifies the area information that will be provided to the SET for the area event triggered SUPL session	
Type:	Element
Format:	Char String
Defined values:	AREA_ID
	GEOGRAPHIC_AREA
	AREA_ID_AND_GEOGRAPHIC_AREA
Default value:	
Example:	`<area_info>AREA_ID</area_info>`
Note:	

8.2 cc

Description:	
Specifies the country code	
Type:	Element
Format:	Char String
Defined values:	1-3 digits e.g., 355 for Albania
Default value:	-
Example:	`<cc>355</cc>`
Note:	

8.3 pseudoid

Description:	
Pseudoid is used for backwards compatibility purposes to force the correct privacy action in the VPLMN when receiving network element doesn't support 3GPP Release 6 (for more information see [23.271]. In the 3GPP system this element is specified as being an E.164 number.	
Type:	Element
Format:	Char string
Defined values:	
Default value:	-
Example:	`<pseudoid>358401234567</pseudoid>`
Note:	-

8.4 cellid

Description:
Identifies the Cell identity in a GSM network

Type:	Element
Format:	Char String
Defined values:	0-65535
Default value:	-
Example:	`<cellid>546</cellid>`
Note:	

8.5 cellparametersid

Description:	
Specifies the Cell Parameters ID in TD-SCDMA.	
Type:	Element
Format:	Char String
Defined values:	0-127
Default value:	-
Example:	`<cellparametersid>50</cellparametersid>`
Note:	

8.6 uc_id

Description:	
Identifies the Cell identity within a WCDMA network	
Type:	Element
Format:	Char String
Defined values:	0-268435455
Default value:	-
Example:	`<uc_id>228435001</uc_id>`
Note:	

8.6.1 status

Description:		
Defines the status of the uc_id element.		
Type:	Attribute	
Format:	Char String	
Defined values:	STALE	The value of uc_id is not may no longer be valid.
	CURRENT	The value of uc_id is valid.
	UNKNOWN	The staus of of uc_id is not known.
Default value:	CURRENT	
Example:	`<uc_id status="CURRENT">228435001</uc_id status>`	
Note:		

8.7 sac

Description:	
Identifies the service area code within a WCDMA network	
Type:	Element
Format:	Char String
Defined values:	0-65535
Default value:	-
Example:	`<sac>548</sac>`
Note:	

8.8 client

Description:	
This element holds information regarding Client. To be used for privacy checking procedures.	
Type:	Element
Format:	Char String
Defined values:	-
Default value:	-
Example:	-
Note:	

8.8.1 type

Description:	
The type of the client, i.e., Commercial, internal, emergency or lawful intercept.	
Type:	Attribute
Format:	Char String
Defined values:	1 Commercial or Value added client
	2 Lawful Intercept client
	3 Emergency Services Client
Default value:	-

Example:	`<client type="1">`
	`  <id>SomeId</id>`
	`</client>`

Note:	

8.9 clientname

Description:	
The name of the LCS Client stored in the Requesting Location Server. To be used for notification and verification purposes to the target UE.	
Type:	Element
Format:	Char String
Defined values:	-
Default value:	-

Example:	`<clientname>MLPFriendFinder</clientname>`
Note:	

8.10 id

Description:	
A string defining the name of a registered user performing a location request. In this context the user may either be a Client or a Location Server. In the 3GPP system this element corresponds to an external client id and is specified as being an E.164 number.	
Type:	Element
Format:	Char string
Defined values:	
Default value:	
Example:	`<id>358401234567</id>`
Note:	

8.11 imsi

Description:	
The International Mobile Subscriber Identity number as specified in 3GPP TS 23.003 and ITU-T E212 Recommendation. This will only be provided and used in roaming cases.	
Type:	Element
Format:	Char string
Defined values:	-
Default value:	-
Example:	`<imsi>2344512344565</imsi>`
Note:	The IMSI consists of not more than 15 digits.

8.12 lac

Description:	
Identifies the Location Area Code	
Type:	Element
Format:	Char String
Defined values:	1-65535
Default value:	-
Example:	`<lac>234</lac>`
Note:	

8.13 lmsi

Description:	
A local identity allocated by the VLR to a given subscriber for internal management of data in the VLR as defined in 29.002	
Type:	Element

Format:	Char String
Defined values:	-
Default value:	-
Example:	`<lmsi>234</lmsi>`
Note:	

8.14 mcc

Description:	
Specifies the mobile country code	
Type:	Element
Format:	Char String
Defined values:	Up to 3 digits, e.g., 234 for the UK
Default value:	-
Example:	`<mcc>234</lmcc>`
Note:	

8.15 mnc

Description:	
Specifies the mobile network code.	
Type:	Element
Format:	Char String
Defined values:	Up to 3 digits e.g., 15 for Vodafone
Default value:	-
Example:	`<mnc>215</mnci>`
Note:	

8.16 ndc

Description:	
Specifies the national destination code.	
Type:	Element
Format:	Char String
Defined values:	Variable length depending upon the requirements of the destination country.
Default value:	-
Example:	`<ndc>215</ndc>`
Note:	

8.17 nmr_element

Description:
If NMR is sent then this element shall be repeated 1 to 15 times for each channel for which measurements are available. The measurements shall be ordered by decreasing channel numbers.

Type:	Element
Format:	(arfcn, bsic, rxlev)
Defined values:	-
Default value:	-
Example:	-
Note:	-

8.17.1 arfcn

Description:	
ARFCN of the channel. This is an integer in the interval (0..1023)	
Type:	Element
Format:	Char string
Defined values:	-
Default value:	-
Example:	`<arfcn>3</arfcn>`
Note:	

8.17.2 bsic

Description:	
BSIC of the channel. This is an integer in the interval (0..63)	
Type:	Element
Format:	Char string
Defined values:	-
Default value:	-
Example:	`<bsic>7</bsic>`
Note:	

8.17.3 rxlev

Description:	
Measured power of the channel. This is an integer in the interval (0..63). The actual measured power X in dBm is derived from this value N by using the formula X = N-110.	
Type:	Element
Format:	Char string
Defined values:	-
Default value:	-
Example:	`<rxlev>12</rxlev>`
Note:	

8.18 pce

Description:

Holds the address to the Privacy Checking Entity of the target subscriber.	
Type:	Element
Format:	Char string
Defined values:	-
Default value:	-
Example:	`<pce>http://host:port/pce/</pce>`
Note:	-

8.19 poi

Description:	
Privacy Override Inidicator. This element indicates whether the POI flag should be set in the PROVIDE_SUBSCRIBER_LOCATION message to override the privacy checks in the serving node. Details related to this parameter is found in [23.271] Rel 6.	
Type:	Element
Format:	Char string
Defined values:	-
Default value:	
Example:	`<poi flag="ON">`
Note:	-

8.19.1 flag

Description:		
Flag indicates whether the POI must be set or not.		
Type:	Attribute	
Format:	Char string	
Defined values:	ON	The POI must be set
	OFF	The POI must not be set
Default value:	OFF	
Example:	`<poi flag="ON">`	
Note:	-	

8.20 serving_node_action

Description:	
Indicates the action to be taken by the serving node for LCS Notification Invoke procedure depending on the privacy settings of the target subscriber, i.e., whether the subscriber should be notified or if verification from the subscriber is required. Details related to this parameter is found in [23.271] Rel 6.	
Type:	Element
Format:	Char string
Defined values:	-
Default value:	-
Example:	`<serving_node_action passive_type="POSTION_IF_ALLOWED active_type="POSITION>`
Note:	-

8.20.1 passive_type

Description:		
The action to be used by the serving node for the LCS Notification Invoke procedure if target subscriber is not originator of location request.		
Type:	Attribute	
Format:	Char string	
Defined values:	POSITION_NOT_ALLOWED	Positioning is not allowed.
	POSITION	Positioning allowed without notifying the UE user
	NOTIFY_AND_POSITION	Positioning allowed with notification to the UE user
	POSITION_IF_NOT_DISALLOWED	Positioning requires notification and verification by the UE user; positioning is allowed only if granted by the UE user or if there is no response to the notification
	POSITION_IF_ALLOWED	Positioning requires notification and verification by the UE user; positioning is allowed only if granted by the UE user.
Default value:		
Example:	`<serving_node_action passive_type="POSITION_IF_ALLOWED">`	
Note:	The "POSITION_NOT_ALLOWED" is needed when active_type is sent and a passive requesttype is not allowed.	

8.20.2 active_type

Description:		
The action to be used by the serving node for the LCS Notification Invoke procedure if target subscriber is originator of location request.		
Type:	Attribute	
Format:	Char string	
Defined values:	POSITION_NOT_ALLOWED	Positioning is not allowed.
	POSITION	Positioning allowed without notifying the UE user
	NOTIFY_AND_POSITION	Positioning allowed with notification to the UE user
	POSITION_IF_NOT_DISALLOWED	Positioning requires notification and verification by the UE user; positioning is allowed only if granted by the UE user or if there is no response to the notification
	POSITION_IF_ALLOWED	Positioning requires notification and verification by the UE user; positioning is allowed only if granted by the UE user.
Default value:	POSITION_NOT_ALLOWED	
Example:	`<serving_node_action passive_type="POSITION_IF_ALLOWED" active_type="POSITION">`	
Note:	-	

8.21 pwd

Description:	
The password for the registered user performing a location request. In this context the user may either be a Client or an Location Server.	
Type:	Element

Format:	Char string
Defined values:	
Default value:	-
Example:	`<pwd>the5pwd</pwd>`
Note:	-

8.22 serviceid

Description:	
Specifies an id that is used by an entity to identify the service or application that is accessing the network.	
Type:	Element
Format:	Char string
Defined values:	
Default value:	-
Example:	`<serviceid>0005</serviceid>`
Note:	A service provided by an MLS Client is identified by a Service Identifier. One MLS client may have one or more services. The combination of the MLS client Identifier and the Service Identifier constitutes a unique identification of a service.

8.23 servicetype

Description:	
This element indicates one of the service types as given in 3GPP 22.071 Rel 6.	
Type:	Element
Format:	Char string
Defined values:	
Default value:	-
Example:	`<servicetype>0005</servicetype>`
Note:	The location server assigns the servicetype based on serviceid and client. Following service types are defined according to 3GPP 22.071: - Emergency services - Emergency alert services - Person tracking - Fleet management - Asset management - Traffic congestion reporting - Roadside assistance - Routing to nearest commercial enterprise - Traffic and public transportation information - City sightseeing - Localized advertising - Mobile yellow pages

	- Weather - Asset and service finding - Gaming - Find your friend - Dating - Chatting - Route finding - Where-am-I

8.24 sgsnid

Description:	
Uniquely specifies a SGSN within a network.	
Type:	Element
Format:	Char string
Defined values:	In GSM/WCDMA, defined values shall be according to ITU-T E.164.
Default value:	-
Example:	`<sgsnid capability="4">1541154871</sgsnid>`
Note:	-

8.24.1 capability

Description:	
Defines the LCS capability of the serving node as specified in [23.271] Rel 6.	
Type:	Attribute
Format:	Char string
Defined values:	1 LCS capability set 1: R98 and R99 LCS (pre-Rel'4 LCS)
	2 LCS capability set 2: Rel'4 LCS
	3 LCS capability set 3: Rel'5 LCS
	4 LCS capability set 4: Rel'6 or later LCS
	5 LCS capability set 5: Rel'7 or later LCS
Default value:	-

Example:	`<sgsnid capability="4">`
	`<cc>46</cc>`
	`<ndc>70</ndc>`
	`<sgsnno>1541154871</sgsnno >`
	`</sgsnid >`

Note:	

8.25 ta

Description:	
This Radio Access Network element that can arguably be used to offer enhanced positioning. (Timing Advance)	
Type:	Element

Format:	Char String
Defined values:	0-63
Default value:	-
Example:	`<ta>3</ta>`
Note:	Further Information regarding this element can be found in the relevant GSM Specifications

8.26 requestmode

Description:	
Defines the type of the service that has been requested by the ASP.	
Type:	Element
Format:	Void
Defined values:	-
Default value:	-
Example:	`<requestmode type="ACTIVE"/>`
Note:	

8.26.1 type

Description:		
Defines the type of the service that has been requested by the ASP		
Type:	Attribute	
Format:	Char string	
Defined values:	PASSIVE	The service is one that is not directly initiated by the user.
	ACTIVE	The service is one that the user is initiating personally.
Default value:	PASSIVE	
Example:	`<requestmode type="ACTIVE" />`	
Note:	The default value is set to PASSIVE, as this is likely to be the one that is most restrictively defined by the user.	

8.27 vlrid

Description:	
Uniquely specifies a VLR within a network.	
Type:	Element
Format:	Char String
Defined values:	In GSM/WCDMA, defined values shall be according to ITU-T E.164.
Default value:	

Example:	`<vlrid capability="4">`
	`<cc>46</cc>`
	`<ndc>70</ndc>`
	`<vlrno>1541154871</vlrno>`
	`</vlrid>`

Note:	

8.27.1 capability

Description:	
Defines the LCS capability of the serving node as specified in [23.271] Rel 6.	
Type:	Attribute
Format:	Char string
Defined values:	1 LCS capability set 1: R98 and R99 LCS (pre-Rel'4 LCS)
	2 LCS capability set 2: Rel'4 LCS
	3 LCS capability set 3: Rel'5 LCS
	4 LCS capability set 4: Rel'6 or later LCS
	5 LCS capability set 5: Rel'7 or later LCS
Default value:	-

Example:	`<vlrid capability="4">`
	`<cc>46</cc>`
	`<ndc>70</ndc>`
	`<vlrno>1541154871</vlrno>`
	`</vlrid>`

Note:	

8.28 vlrno

Description:	
Uniquely specifies a VLR within a network.	
Type:	Element
Format:	Char String
Defined values:	In GSM/WCDMA, defined values shall be according to ITU-T E.164.
Default value:	
Example:	`<vlrno>1541154871</vlrno>`
Note:	

8.29 v_ls

Description:	
Address to the visited Location Server, i.e., a location server associated with the network the subscriber is currently roaming in.	
Type:	Element
Format:	Char String
Defined values:	-
Default value:	-
Example:	`<v_ls>http://host:port/LocationServer/</v_ls>`
Note:	

8.30 vmscid

Description:	
Uniquely specifies a VMSC within a network.	
Type:	Element

Format:	Char String
Defined values:	In GSM/WCDMA, defined values shall be according to ITU-T E.164.
Default value:	
Example:	<vmscid capability="4"> <cc>46</cc> <ndc>70</ndc> <vmscno>1541154871</vmscno> </vmscid>
Note:	

8.30.1 capability

Description:	
Defines the LCS capability of the serving node as specified in [23.271] Rel 6.	
Type:	Attribute
Format:	Char string
Defined values:	1 LCS capability set 1: R98 and R99 LCS (pre-Rel'4 LCS)
	2 LCS capability set 2: Rel'4 LCS
	3 LCS capability set 3: Rel'5 LCS
	4 LCS capability set 4: Rel'6 or later LCS
	5 LCS capability set 5: Rel'7 or later LCS
Default value:	-
Example:	<vmscid capability="4"> <cc>46</cc> <ndc>70</ndc> <vmscno>1541154871</vmscno> </vmscid>
Note:	

8.31 vmscno

Description:	
Uniquely specifies a VMSC within a network.	
Type:	Element
Format:	Char String
Defined values:	In GSM/WCDMA, defined values shall be according to ITU-T E.164.
Default value:	
Example:	<vmscno>1541154871</vmscno>
Note:	

8.32 change_area

Description:	
Specifies the event that initiated the positioning of the MS	
Type:	Element
Format:	
Defined values:	

Default value:	

Example:	`<change_area type="MS_ENTERING">`
	`  <target_area>`
	`  <cc>355</cc>`
	`  </targer_area>`
	`</change_area>`

Note:	

8.32.1 type

Description:	
Specifies the trigger that initiated the positioning of the MS	
Type:	Attribute
Format:	Char string
Defined values:	MS_ENTERING
	MS_LEAVING
	MS_WITHIN_AREA
	MS_OUTSIDE_AREA
Default value:	
Example:	`<change_area type="MS_ENTERING">`
Note:	

8.32.2 loc_estimates

Description:	
Specifies whether location estimates is required or not	
Type:	Attribute
Format:	Char string
Defined values:	TRUE
	FALSE
Default value:	
Example:	`<change_area loc_estimates="TRUE">`
Note:	

8.33 target_area

Description:	
Specify the target area in change_area event.	
Type:	Element
Format:	
Defined values:	
Default value:	

Example:	`<target_area>`
	`  <cc>355</cc>`
	`</target_area>`

Note:	

8.34 eme_pos

Description:	
Specifies the position of the MS in an emergency location service response.	
Type:	Element
Format:	
Defined values:	
Default value:	

Example:	`<eme_pos>`
	`  <msid>4711</msid>`
	`  <poserr>`
	`  <result resid="1">SYSTEM FAILURE</result>`
	`  <time utc_off="0200">20040617144558</time>`
	`  </poserr>`
	`</eme_pos>`

Note:	

8.34.1 pos_method

Description:		
Specifies the positioning method used to obtain the associated location estimate		
Type:	Attribute	
Format:	Char string	
Defined values:	`CELL`	Cell coverage based positioning method
	`OTDOA`	Observed Time Difference of Arrival (OTDOA) positioning method
	`GPS`	Global Positioning System (GPS) based positioning method
	`A-GPS`	Assisted GPS based positioning method
	`E-OTD`	Enhanced Observed Time Difference (E-OTD) positioning method
	`U-TDOA`	Uplink Time Difference of Arrival (U-TDOA) positioning method
	`AFLT`	Advanced Forward Link Triangulation positioning method
	`EFLT`	Enhanced Forward Link Triangulation positioning method
	`E-CID`	Enhancement Cell ID positioning method
	`UNKNOWN`	Unknown positioning method
	`OTHER`	Any other positioning method
Default value:		
Example:	`<pos pos_method="A-GPS"> …. </pos>`	
Note:		

8.35 qop_not_met

Description:
Indication that the requested QoP (Quality of Position) was not met, if needed.
Type: Element
Format: Void
Defined values:
Default value:
Example:

Note:	Only applicable if the request was for best effort class, i.e., a location estimate is returned (rather than an error) although the requested QoP requirement could not be fulfilled.

8.36 alt_acc

Description:	
Accuracy of altitude in meters	
Type:	Element
Format:	Char String
Defined values:	[0-9]+
Default value:	
Example:	`<alt_acc>200</alt_acc>`
Note:	

8.36.1 qop_class

Description:		
Defines the requested degree of adherence by the Location Service to the quality of service parameter specified in the request. In the RLP context this refers to the XML "parent" element, i.e alt_acc.		
Type:	Attribute	
Format:	Char string	
Defined values:	ASSURED	defines the most stringent requirement on the accuracy achieved for a location request. If a location estimate obtained does not fulfill the 'alt_acc' requirements, then it shall be discarded and an appropriate error cause sent.
	BEST_EFFORT	defines the least stringent requirement on the QoP achieved for a location request. If a location estimate obtained does not fulfill the other QoP requirements, it should still be returned but with an appropriate indication that the requested QoP was not met. If no location estimate is obtained, an appropriate error cause is sent..
Default value:		
Example:	`<alt_acc qop_class="BEST_EFFORT">200</alt_acc>`	
Note:	For details see 3GPP TS 23.271, v6.8.0, clause 6.5.1	

8.36.2 h_ls

Description:	
Specifies the H-GMLC address as specified in 3GPP TS 23.271	
Type:	Element
Format:	Char string
Defined values:	
Default value:	
Example:	`<h_ls>http://host:port/LocationServer/</h_ls>`
Note:	-

8.37 supl_message

Description:	
Element which contains a SUPL message defined in [SUPL AD].	
Type:	Element
Format:	Base64
Defined values:	
Default value:	

Example:	`<supl_message>`
	`DFGHDSGHDLGH0546YT045867T5LHGLSDFY76T047`
	`</supl_message>`

Note:	

8.38 supl_session_id

Description:	
Element that identifies a RLP SUPL session between a H-SLP and a V-SLP. Only used in Standard SUPL Roaming Location Immediate Service	
Type:	Element
Format:	Base64
Defined values:	
Default value:	
Example:	`<supl_session_id>ABH98560</supl_session_id>`
Note:	supl_session_id is only used between two SLP and it need not to be identical to the session identifier carried in the supl_message

8.38.1 notif_mode

Description:	
Specifies the Notification mode used during the SUPL session.	
Type:	Attribute
Format:	Char string
Defined values:	BASED_ON_LOCATION
	NORMAL
Default value:	NORMAL
Example:	`<supl_session_id notif_mode="NORMAL">`
Note:	

8.39 lcs_ref

Description:	
The LCS reference number received from Home Location Server. For more information see [23.271]	
Type:	Element
Format:	Char String
Defined values:	Two decimal digits, 00-64
Default value:	-
Example:	`<lcs_ref>50</lcs_ref>`

Note:	Lcs_ref SHALL be sent in the triggered location reporting request with change of area event or MS_AVAIL event and the combined triggered location reporting request with periodic event / MS_AVAIL event request cases. The LCS reference number is received as one octet and shall be encoded to the decimal numbers 00 to 64.

8.40 service attributes

In addition to the service_attributes specified in [OMA-MLP] this specification introduces the recv_role attribute to indicate the role a Location Server should play when receiving a location request over RLP.

8.40.1 recv_role

Description:	
This attribute indicates the role the receiving Location Server should assume when receiving a location request over RLP.	
Type:	Attribute
Format:	Char String
Defined values:	HLS Home Location Server
	VLS Visited Location Server
Default value:	N/A
Example:	`<srlir ver="1.2.0" recv_role="HLS">…</srlir>`
Note:	

8.41 supported_shapes

Description:	
Defines the shapes that are supported by the Location Server. In an 3GPP environment details related to this parameter can be found in [23.271] and [29.002] Rel 6. Also refer to section 10.2.	
Type:	Element
Format:	Void
Defined values:	-
Default value:	-
Example:	`<supported_shapes Point="YES" Polygon="YES" Altitude="YES" />`
Note:	If the element is not sent, the receiving Location Server may, according to section 7.6.11.20 in [29.002], assume certain shapes are supported. In other environments other assumption may be defined.

8.41.1 Point

Description:	
Indicates if the shape Point is supported.	
Type:	Attribute
Format:	Char string
Defined values:	NO
	YES
Default value:	NO

Example:	`<supported_shapes Point="YES"/>`
Note:	

8.41.2 Linestring

Description:	
Indicates if the shape LineString is supported.	
Type:	Attribute
Format:	Char string
Defined values:	NO
	YES
Default value:	NO
Example:	`<supported_shapes LineString="YES"/>`
Note:	

8.41.3 Polygon

Description:	
Indicates if the shape Polygon is supported.	
Type:	Attribute
Format:	Char string
Defined values:	NO
	YES
Default value:	NO
Example:	`<supported_shapes Polygon="YES"/>`
Note:	

8.41.4 Box

Description:	
Indicates if the shape Box is supported.	
Type:	Attribute
Format:	Char string
Defined values:	NO
	YES
Default value:	NO
Example:	`<supported_shapes Box="YES"/>`
Note:	

8.41.5 CircularArea

Description:	
Indicates if the shape CircularArea is supported.	
Type:	Attribute
Format:	Char string
Defined values:	NO

	YES
Default value:	NO
Example:	`<supported_shapes CircularArea="YES"/>`
Note:	

8.41.6 CircularArcArea

Description:	
Indicates if the shape CircularArcArea is supported.	
Type:	Attribute
Format:	Char string
Defined values:	NO
	YES
Default value:	NO
Example:	`<supported_shapes CircularArcArea="YES"/>`
Note:	

8.41.7 EllipticalArea

Description:	
Indicates if the shape EllipticalArea is supported.	
Type:	Attribute
Format:	Char string
Defined values:	NO
	YES
Default value:	NO
Example:	`<supported_shapes EllipticalArea="YES"/>`
Note:	

8.41.8 MultiLineString

Description:	
Indicates if the shape MultiLineString is supported.	
Type:	Attribute
Format:	Char string
Defined values:	NO
	YES
Default value:	NO
Example:	`<supported_shapes MultiLineString="YES"/>`
Note:	

8.41.9 MultiPoint

Description:	
Indicates if the shape MultiPoint is supported.	
Type:	Attribute

Format:	Char string
Defined values:	NO
	YES
Default value:	NO
Example:	`<supported_shapes MultiPoint="YES"/>`
Note:	

8.41.10 MultiPolygon

Description:	
Indicates if the shape MultiPolygon is supported.	
Type:	Attribute
Format:	Char string
Defined values:	NO
	YES
Default value:	NO
Example:	`<supported_shapes MultiPolygon="YES"/>`
Note:	

8.41.11 LinearRing

Description:	
Indicates if the shape LinearRing is supported.	
Type:	Attribute
Format:	Char string
Defined values:	NO
	YES
Default value:	NO
Example:	`<supported_shapes LinearRing="YES"/>`
Note:	

8.41.12 Altitude

Description:	
Indicates if the element Altitude is supported in combination with the supported shapes.	
Type:	Attribute
Format:	Char string
Defined values:	NO
	YES
Default value:	NO
Example:	`<supported_shapes Altitude="YES"/>`
Note:	

8.42 primaryscramblingcode

Description:

Specifies the primary scrambling code WCDMA.	
Type:	Element
Format:	Char String
Defined values:	0-511
Default value:	-
Example:	< primaryscramblingcode >2345</ primaryscramblingcode>
Note:	

8.43 uarfcn_ul

Description:	
Specifies the uplink frequency for WCDMA, FDD.	
Type:	Element
Format:	Char String
Defined values:	0-16383
Default value:	-
Example:	<uarfcn_ul>2345</ uarfcn_ul >
Note:	

8.44 uarfcn_dl

Description:	
Specifies the downlink frequency for WCDMA, FDD.	
Type:	Element
Format:	Char String
Defined values:	0-16383
Default value:	-
Example:	<uarfcn_dl>2345</ uarfcn_dl >
Note:	

8.45 uarfcn_nt

Description:	
Specifies the frequency for WCDMA, TDD.	
Type:	Element
Format:	Char String
Defined values:	0-16383
Default value:	-
Example:	<uarfcn_nt>2345</ uarfcn_nt >
Note:	

8.46 nid

Description:
Specifies the network identity for CDMA.

Type:	Element
Format:	Char String
Defined values:	0-65535
Default value:	-
Example:	<nid>2345</ nid >
Note:	

8.47 sid

Description:	
Specifies the system identity for CDMA.	
Type:	Element
Format:	Char String
Defined values:	0-32767
Default value:	-
Example:	<sid>2345</ sid >
Note:	

8.48 base_id

Description:	
Specifies the base station identity for CDMA.	
Type:	Element
Format:	Char String
Defined values:	0-65535
Default value:	-
Example:	<base_id>2345</ base_id >
Note:	

8.49 base_lat

Description:	
Specifies the Base Station Latitude for CDMA.	
Type:	Element
Format:	Char String
Defined values:	0-41943035
Default value:	-
Example:	<base_lat>2345678</ base_lat >
Note:	

8.50 base_long

Description:	
Specifies the Base Station Longitude for CDMA.	
Type:	Element

Format:	Char String
Defined values:	0-8388607
Default value:	-
Example:	<base_long>234567</ base_long >
Note:	

8.51 ref_pn

Description:	
Specifies the Base Station PN Code for CDMA.	
Type:	Element
Format:	Char String
Defined values:	0-511
Default value:	-
Example:	<ref_pn>2345</ ref_pn >
Note:	

8.52 sgsnno

Description:	
Uniquely specifies a SGSN within a network.	
Type:	Element
Format:	Char String
Defined values:	In GSM/WCDMA, defined values shall be according to ITU-T E.164.
Default value:	
Example:	<sgsnno>1541154871</sgsnno>
Note:	

8.53 correlation_id

Description:	
Unique identifier for transaction	
Type:	Element
Format:	Char String, containing a 16 character hex value
Defined values:	0000000000000000 to FFFFFFFFFFFFFFFF
Default value:	N/A
Example:	<correlation_id>0891D168F008B8B8</correlation_id>
Note:	

8.54 esn

Description:	
Electronic Serial Number, which is the unique identifier of the terminal hardware	
Type:	Element
Format:	Char String

Defined values:	
Default value:	N/A
Example:	`<esn>0891D168F008B8B8</esn>`
Note:	

8.55 meid

Description:	
Mobile Equipment Identifier, which is the unique identifier of the terminal hardware	
Type:	Element
Format:	Char String, containing a 16 character hex value
Defined values:	
Default value:	N/A
Example:	`<meid>AF0123450ABCDE </meid>`
Note:	

8.56 mpcap

Description:	
Mobile Position Capability, indicates the positioning capability of a handset	
Type:	Element
Format:	Char String containing hex numbers
Defined values:	"00" – Undefined "01" – None "02" – AFLT and GPS "03" – AFLT only "04" – GPS only
Default value:	N/A
Example:	`<mpcap>0891D168F008B8B8</mpcap>`
Note:	

8.57 mscid

Description:	
Mobile Switching Center Identifier	
Type:	Element
Format:	Char String, containing a 16 character hex value
Defined values:	
Default value:	N/A
Example:	
Note:	

8.58 pc_ssn

Description:

Point Code – Subsystem Number of MSC	
Type:	Element
Format:	Char String, containing Point Code and Subsystem Number using colon separators
Defined values:	
Default value:	N/A
Example:	`<pc_ssn>5:38:104:20</pc_ssn>`
Note:	

8.59 pos_tech_select

Description:	
Requests that a specific positioning technology be used by the Serving MPC	
Type:	Element
Format:	Empty

8.59.1 type

Description:	
Positioning Technology	
Type:	Attribute
Format:	Char String
Defined values:	“UNKNOWN”, “CELL”, “HIGHACC”
Default value:	“UNKNOWN”
Note:	

8.60 loc_type

Description:	
Defines the type of location requested.	
Type:	Element
Format:	Void
Defined values:	
Default value:	N/A
Example:	`<loc_type type="INITIAL"/>`
Note:	

8.60.1 type

Description:		
Defines the type of location requested.		
Type:	Attribute	
Format:	Char string	
Defined values:	CURRENT	After a location attempt has successfully delivered a location estimate and its associated time stamp, the location estimate and time stamp is known as the current location at that point in time.

	LAST	The current location estimate and its associated time stamp is generally stored in the network and is known as the last known location until replaced by a later location estimate and a new time stamp. The last known location may be distinct from the initial location, i.e., more recent.
	LAST_OR_CURRENT	If the last known location is stored in the network and if this location satisfies the Quality of Service requested by the location-based application the last known location is returned, otherwise the current location is returned.
	CURRENT_OR_LAST	If a location attempt has successfully delivered a current location, it is returned. Otherwise if the last known location stored in the network satisfies the requested Quality of service the last known location is returned.
	INITIAL	In an originating emergency call, the location estimate and the associated time stamp at the commencement of the call set-up is known as the initial location.
	NOTIF_VERIF_ONLY	Only the Notification or Verification procedure and no positioning procedure shall be performed.
Default value:	CURRENT	
Example:	`<supported_shapes Point="YES"/>`	
Note:		

8.60.2 per_type

Description:		
Defines the type of periodic location requested		
Type:	Attribute	
Format:	Char string	
Defined values:	REALTIME	Location Reports shall be sent to MLS Client at the requested interval independent if current position estimate is available or not.
	QUASIREALTIME	Location Reports shall be sent to MLS Client at the requested interval if current position estimates are available. If current position estimate is unavailable due to lack of communication with the target, no report shall be sent. If position estimates later becomes available they shall immediately be sent to MLS Client
	BATCH	Location Reports shall be sent to MLS Client when batch condition is fulfilled or when service is terminated.
Default value:	REALTIME	
Example:	`<loc_type per_type="BATCH" />`	
Note:		

8.61 lcs_periodic_info

Description:	
Defines additional info for periodic location according to [23.271]	
Type:	Element
Format:	(reportingplmn)
Defined values:	-
Default value:	-

Example:	-
Note:	-

8.61.1 short_circuit

Description:	
Defines if MO_LR short circiut is supported. See also [23.271]	
Type:	Attribute
Format:	Char string
Defined values:	YES MO-LR short circiut is supported
	NO MO-LR short circiut is not supported
Default value:	NO
Example:	
Note:	

8.61.2 prioritized

Description:	
Defines if the list of reporting plmn is prioritized. See also [23.271]	
Type:	Attribute
Format:	Char string
Defined values:	YES PLMN list is prioritized
	NO PLMN list is not prioritized
Default value:	NO
Example:	
Note:	

8.62 reportingplmn

Description:	
Defines indentity of reporting PLMN. See also [23.271]	
Type:	Element
Format:	(mcc, mnc)
Defined values:	-
Default value:	-
Example:	-
Note:	-

8.62.1 tech

Description:	
Defines the radio access technology in the reporting PLMN. See also [23.271]	
Type:	Attribute
Format:	Char string
Defined values:	GSM

	UMTS
Default value:	-
Example:	
Note:	

8.63 spcsetid

Description:	
This element defines the authentication key used by the SET for H/V-SPC authentication.	
Type:	Element
Format:	Char String, containing a 32 character hex value
Defined values:	00000000000000000000000000000000 to FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF
Default value:	
Example:	`<spcsetid>FFFFFFFFFFFFFFFFFFFFFFFFFFFF321</spcsetid>`
Note:	

8.64 rand

Description:	
This element defines the random part of the transaction ID used for H/V-SPC authentication.	
Type:	Element
Format:	Char String, containing a 32 character hex value
Defined values:	00000000000000000000000000000000 to FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF
Default value:	
Example:	`<rand>FFFFFFFFFFFFFFFFFFFFFFFFFFFF321</rand>`
Note:	

8.65 slpfqdn

Description:	
This element defines the fqdn part of the transaction ID used for H/V-SPC authentication.	
Type:	Element
Format:	Char String
Defined values:	
Default value:	
Example:	`<slpfqdn>h-slp.operatorname.pub.3gppnetwork.org</slpfqdn>`
Note:	

8.66 spcset_keylifetime

Description:	
This parameter defines the lifetime, in hours, of SPC_SET_Key	
Type:	Element
Format:	Char String
Defined values:	0 - 24

Default value:	
Example:	`<spcset_keylifetime>5</spcset_keylifetime>`
Note:	

8.67 batch_cond

Description:		
Defines the condition when to execute batch reporting		
Type:	Element	
Format:	Char String	
Defined values:	1 – 1024 if type is measurements, 1 – 2048 if type is minutes.	
Default value:	-	
Example:	`<batch_cond batch_type="MEASUREMENTS"> 500 </batch_cond>`	
Note:		

8.67.1 batch_type

Description:		
Defines the type of batch condition.		
Type:	Attribute	
Format:	Char string	
Defined values:	MEASUREMENTS	Location reports shall be sent when specified number of measurements have executed
	MINUTES	Location reports shall be sent when specified number minutes has elapsed.
	ENDOFSERVICE	Location report shall be sent when sevice terminates. Any value in element batch_cond is disregarded
Default value:	CURRENT	
Example:	`<batch_cond batch_type="MEASUREMENTS"> 500 </batch_cond>`	
Note:		

8.68 lte_ci

Description:	
LTE Cell Identity. Details related to this parameter is found in [3GPP LTE]	
Type:	Element
Format:	Char string
Defined values:	
Default value:	-
Example:	`-<lte_ci>54654</lte_ci>`
Note:	-

8.69 lte_ta

Description:	
Timing Advance. Details related to this parameter is found in [3GPP LTE]	
Type:	Element
Format:	Char string
Defined values:	range: (0.. 1282)
Default value:	-
Example:	`-<lte_ta>20</lte_ta>`
Note:	-

8.70 measResultEUTRA

8.70.1 rsrpResult

Description:	
RSRP: Reference Signal Received Power. Details related to this parameter is found in [3GPP LTE].	
Type:	Element
Format:	Char string
Defined values:	(0..97)
Default value:	
Example:	
Note:	

8.70.2 rsrqResult

Description:	
RSRQ: Reference Signal Received Quality. Details related to this parameter is found in [3GPP LTE]	
Type:	Element
Format:	Char string
Defined values:	(0..34)
Default value:	
Example:	
Note:	

8.71 sector_id

Description:	
Sector Address Identifier. The access terminal shall not assume anything about the format of the SectorID. The SectorID shall uniquely identify a sector. Details related to this parameter is found in [TIA-881]	
Type:	Element
Format:	Char string
Defined values:	

Default value:	---
Example:	
Note:	

8.72 mme-name

Description:	
This element uuniquely identifies a MME	
Type:	Element
Format:	Char String
Defined values:	
Default value:	
Example:	`<mme-name>mme_48.operatorname.pub.3gppnetwork.org</mme-name>`
Note:	

9. Result codes

9.1 Result codes

Result codes are defined in [OMA-MLP]. Result codes specific to inter-Location Server interface are given in the table below.

Resid	Slogan	Description
208	TARGET MOVED TO NEW MSC/SGSN	The triggered Location Request has been aborted due to that target has moved to another MSC/SGSN. This result code SHALL only be used towards The Home Location Server. Restrictions: - This code SHALL only be used in RLP.

10. Adaptation to 3GPP LCS: (informative)

10.1 Version mapping between 3GPP TS23.271 and this specification

The following table shows the version number of this specification fully conforming to a certain version of [TS23.271], i.e., the version of this specification for the correct reference in a certain version of the 3GPP specification.

3GPP TS23.271 version number	Conforming version number of this specification
Release 7	Version 1.1

10.2 The terminology mapping table with 3GPP LCS Specifications

A terminology mapping can be found in [OMA-MLP].

The following is a list of the terms in RLP used differently from the ones defined for 3GPP:

RLP	3GPP	Notes
Point	Ellipsoid Point	Altitude element not supported
CircularArea	Ellipsoid point with uncertainty Circle	Altitude element not supported
EllipticalArea	Ellipsoid point with uncertainty Ellipse	Altitude element not supported
Polygon	Polygon	Altitude element not supported
Point	Ellipsoid point with altitude	Altitude element supported
EllipticalArea	Ellipsoid point with altitude and uncertainty Ellipsoid	Altitude element supported
CircularArcArea	Ellipsoid Arc	Altitude element not supported

10.3 The corresponding terms used for the location procedures in 3GPP LCS Definition

The following is a list of terms defined in RLP corresponding to the 3GPP LCS definition in TS23.271 for the location procedures.

Location procedures defined in 3GPP (23.271)		Services defined in RLP
Circuit Switched Mobile Terminating Location Request CS-MT-LR	LCS Service Request	Standard Roaming Location Immediate Request
	LCS Service Response	Standard Roaming Location Immediate Answer
CS-MT-LR without HLR Query - applicable to North America Emergency Calls only	LCS Service Request	Not applicable to RLP
	LCS Service Response	Not applicable to RLP
Packet Switched Mobile Terminating Location Request PS-MT-LR	LCS Service Request	Standard Roaming Location Immediate Request
	LCS Service Response	Standard Roaming Location Immediate Answer

Location procedures defined in 3GPP (23.271)		Services defined in RLP
Network Induced Location Request NI-LR	Location Information	Not applicable to RLP
Packet Switched Network Induced Location Request PS-NI-LR	Location Information	Not applicable to RLP
Mobile Terminating Deferred Location Request	LCS Service Request	Triggered Roaming Location Reporting Request
	LCS Service Response(Provide Subscriber Location ack)	Triggered Roaming Location Reporting Answer
	LCS Service Response(Subscriber Location Report)	Triggered Roaming Location Report
Combined Periodical/Deferred Mobile Terminating Location Request	LCS Service Request	Periodical reporting not supported over RLP.
	LCS Service Response(Provide Subscriber Location ack)	Periodical reporting not supported over RLP.
	LCS Service Response(Subscriber Location Report)	Periodical reporting not supported over RLP.
Cancellation of a Deferred Location Request	LCS Cancel Service Request	Triggered Roaming Location Reporting Stop Request
	LCS Cancel Service Response	Triggered Roaming Location Reporting Stop Answer
Mobile Originating Location Request, Circuit Switched CS-MO-LR	MO-LR Location Information	Standard Roaming Location Report
	MO-LR Location Information Ack	Standard Roaming Location Report Answer
Mobile Originating Location Request, Packet Switched PS-MO-LR	MO-LR Location Information	Standard Roaming Location Report
	MO-LR Location Information Ack	Standard Roaming Location Report Answer

10.4 Error Mapping (informative)

Error mapping can be found in [OMA-MLP].

11.HTTP Mapping

This section describes how to use RLP over the HTTP transport mechanism using “HTTP/1.1”.

HTTP is a request/response protocol involving a server and a client. In the context of RLP, the client may be referred to as the Requesting Location Server and the server the Home or Visiting Location Server (GMLC/MPC). For more information about HTTP, refer to [RFC2616] and http://www.w3.org.

A Location Server MAY provide two socket ports for operation, one for encryption with SSL/TLS and one without. The reason for having one insecure port is that encryption can consume resources, and if the Location Servers are in a secure domain there might not be a need for encryption. Location Servers residing in an insecure domain, i.e., on the Internet, may use the secure port to ensure the security and privacy of the location information.

For further information about SSL/TLS see [RFC2246].

Two port numbers have been selected and proposed as standard ports for location servers implementing RLP. These ports are registered with IANA (Internet Assigned Numbers Authority, see [IANA]). The two port numbers are:

oma-rlp	7273/tcp	OMA Roaming Location Protocol
oma-rlp	7273/udp	OMA Roaming Location Protocol
oma-rlp-s	7274/tcp	OMA Roaming Location Protocol Secure
oma-rlp-s	7274/udp	OMA Roaming Location Protocol Secure

A Location Server MAY choose to introduce any other socket based or HTTP transparent technology for secure transfers. Any such technology SHALL be provided over a different port than the two mentioned above.

11.1 Location Services using HTTP

An Requesting Location Server SHALL request a Location Service by issuing an HTTP POST request towards the Home or Visiting Location Server. For more information about HTTP POST, see [RFC2616]. The request line syntax is shown below.

```
Request-line= POST SP path SP HTTP/1.1 CRLF
```

The request MUST include the entity-header Content-length field as part of the request. The message body of the request SHALL include the XML formatted request and SHALL have the length specified by the Requesting Location Server in the Content-length field.

If the request is a triggered request the result SHALL be delivered to the Requesting Location Server through an HTTP POST operation issued by the Visiting or Home Location Server.

All Location Services are invoked by sending a request using HTTP POST to a certain URI. An example of an URI is shown below.

```
http://location-server.example.com:9210/LocationQueryService/
```

The response to the invocation of a Location Service SHALL be returned using an HTTP response.

If the Requesting Location Server requests standard location of asynchronous mode, triggered reporting of location, the Location Server SHALL return the report by performing an HTTP POST operation towards the Requesting Location Server. The Requesting Location Server must specify the URI that the answer should be posted to. This is done in the service request or by having it in a Requesting Location Server profile that can be stored in the Location Server.

The report SHALL be included in the message body and the Content-length entity SHALL be set to the length of the answer.

When an Requesting Location Server attempts to invoke a service request that is not defined in this specification, the Location Server SHALL return a General Error Message (GEM) in a HTTP '404' error reponse:

```
Status-Line= HTTP/1.1 SP 404 SP Not Found CRLF
```

11.2 Request and Response Encapsulation

A request SHALL have a header part and a body part. A response MAY have a header part and SHALL have a body part. To be able to make a location request with a single XML document the header and the body are encapsulated in the same service initiation DTD. The context header holds the authentication and authorization data pertinent to a particular location request. The body part is described in section 7.3.2 – 7.3.5.

11.2.1 Inter-Location Server Service Initiation DTD

```
<!-- RLP_SVC_INIT -->
<!--
RLP V1.2 Document Type Definition

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MLP is an XML language. Typical usage:
   <?xml version="1.0"?>
   <!DOCTYPE rlp_svc_init PUBLIC "-//OMA//DTD {abbrev x.y}//EN"
             "http://www.openmobilealliance.org/DTD/{filename}"
             [<?oma-{ref}-ver supported-versions="{versions}"?>]>
   <rlp_svc_init>
      ...
   </rlp_svc_init>

Terms and conditions of use are available from the
Open Mobile Alliance Ltd. web site at
http://www.openmobilealliance.org/
-->
<!ENTITY    % extension.message       "">

<!ELEMENT   rlp_svc_init              (rlp_hdr, (srlir | trlrr | trlrsr | trlrqr | erlir |
                                      ssrlir | ssrp %extension.message;))>
<!ATTLIST   rlp_svc_init
            ver CDATA                 #FIXED "1.2.0">

<!ENTITY    %                         SYSTEM "MLP_ID_QOP_RES_SHAPE_340.DTD">
            mlp_id_qop_res_shape.dtd
%mlp_id_qop_res_shape.dtd;
```

Example 1

```
<?xml version="1.0" ?>
<!DOCTYPE rlp_svc_init SYSTEM "RLP_SVC_INIT_120.DTD">
<rlp_svc_init ver="1.2.0">
  <rlp_hdr ver="1.2.0">
    ...
  </rlp_hdr>
  <srlir ver="1.2.0">
    ...
  </srlir>
</rlp_svc_init>
```

11.2.2 Inter-Location Server Service Result DTD

```
<!-- RLP_SVC_RESULT -->
<!--
RLP V1.2 Document Type Definition

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RLP is an XML language. Typical usage:
   <?xml version="1.0"?>
   <!DOCTYPE rlp_svc_result PUBLIC "-//OMA//DTD {abbrev x.y}//EN"
             "http://www.openmobilealliance.org/DTD/{filename}"
             [<?oma-{ref}-ver supported-versions="{versions}"?>]>
   <rlp_svc_result>
      ...
   </rlp_svc_result}>

Terms and conditions of use are available from the
Open Mobile Alliance Ltd. web site at
http://www.openmobilealliance.org/
-->

<!ENTITY    % extension.message       "">
<!ELEMENT   rlp_svc_result           (rlp_hdr?, (srlia | srlirep | trlra | trlrep | trlrsa |
                                     trlrqa | trlqrep | srlrep | srlra | erlia | ssrlia | ssrp |
                                     trlrpr %extension.message;))>

<!ATTLIST   rlp_svc_result
            ver CDATA                #FIXED "1.2.0">
```

Example 1

```
<?xml version="1.0" ?>
<!DOCTYPE rlp_svc_result SYSTEM "RLP_SVC_RESULT_120.DTD">
<rlp_svc_result ver="1.2.0">
  <srlia ver="1.2.0">
    ...
  </srlia>
</rlp_svc_result>
```

Appendix A. Change History (Informative)

A.1 Approved Version History

Reference	Date	Description
OMA-TS-RLP-V1_0-20110719-A	19 Jul 2011	Initial Approved version
OMA-TS-RLP-V1_1-20110719-A	19 Jul 2011	Initial Approved version

A.2 Draft/Candidate Version 1.2 History

Document Identifier	Date	Sections	Description
Draft Versions OMA-TS-RLP-V1_2	19 Aug 2011	n/a	Ininitial draft based on OMA-TS-RLP-V1_1-20110719-A with alignment to latest template. Version number updated from 1.1 to 1.2 where applicable.
	09 Nov 2011	2.1, 4, 7.2.2, 7.2.3, 7.3.3, 11.2, App B	Applied CRs: OMA-LOC-2011-0291-CR_RLP_1_2_Pause_Resume OMA-LOC-2011-0292R01-CR_RLP_1_2_Trigger_Query OMA-LOC-2011-0293-CR_RLP_1_2_Velocity_Trigger OMA-LOC-2011-0294R03-CR_RLP_1_2_Relative_Trigger OMA-LOC-2011-0305-CR_RLP_1_2_Bug_Missing_GNSS OMA-LOC-2011-0311-CR_RLP_1_2_intro_previousVersions
	22 Feb 2012	2.1, 4.3, 7.2.2, 11.2.2	Applied CRs: OMA-LOC-2012-0037-CR_RLP_1_2_IntroductionNewRelease OMA-LOC-2012-0073-CR_RLP_1_2_Some_References_Corrections OMA-LOC-2012-0038-CR_RLP_1_2_two_bugs OMA-LOC-2012-0043-CR_RLP_1_2_motion_state OMA-LOC-2012-0044-CR_RLP_1_2_Trigger_Improvements OMA-LOC-2012-0069R02-CR_RLP_1_2_Equidistance_Trigger
	25 Apr 2012	7.2.2,7.2.3, 7.3.3, 8, 11.2.1, B.2	Applied editorial corrections per CONRR Applied CRs: OMA-LOC-2012-0105-CR_RLP_1_2_CONR_Technical_Comments OMA-LOC-2012-0120-CR_CR_RLP_1_2_TargetAreaImprovementMLPAlignment
	16 May 2012	7.3.3.7	Applied CR: OMA-LOC-2012-0132-CR_RLP_1_2_DTD_Correction
Candidate Version OMA-TS-RLP-V1_2	29 May 2012	n/a	Status changed to Candidate by TP TP ref # OMA-TP-2012-0202-INP_MLS_13_ERP_and_ETR_for_Candidate_Approval

Appendix B. Static Conformance Requirements (Normative)

The notation used in this appendix is specified in [IOPPROC].

B.1 Server side requirements (Normative)

B.1.1 General Requirements

Item	Function	Reference	Status	Requirement
RLP-A-S-001	Parsing of DTDs	6.1	M	
RLP-A-S-002	Invalid values	6.3	M	
RLP-A-S-003	Support of EPSPG 4326	6.5	M	
RLP-A-S-004	Version handling	6.2	M	
RLP-A-S-005	Quality of Position	6.4	O	
RLP-A-S-006	Target Identities, support of MSISDN	6.7	M	
RLP-A-S-007	Priority	6.6	O	

B.1.2 Inter-Location Server Service Initiation DTD

Item	Function	Reference	Status	Requirement
RLP-B-S-001	Inter-Location Server Service Initiation	11.2.1	M	RLP-B-S-002 AND RLP-B-S-003
RLP-B-S-002	RLP Header	11.2.1	M	
RLP-B-S-003	Standard Roaming Location Immediate Request	11.2.1	M	RLP-C-S-003
RLP-B-S-004	Triggered Roaming Location Reporting Request	11.2.1	O	RLP-C-S-005 AND RLP-C-S-006 AND RLP-C-S-007
RLP-B-S-005	Triggered Roaming Location Reporting Stop Request	11.2.1	O	RLP-C-S-007 RLP-F-S-002
RLP-B-S-010	Triggered Roaming Location Reporting Query Request	11.2.1	O	
RLP-B-S-006	Emergency Roaming Location Immediate Request	11.2.1	O	RLP-C-S-008
RLP-B-S-007	Standard SUPL Roaming Location Immediate Request	11.2.1	O	RLP-C-S-009
RLP-B-S-008	Standard SUPL Roaming Position	11.2.1	O	RLP-C-S-010
RLP-B-S-009	Extension Message	11.2.1	O	

B.1.3 Inter-Location Server Service Result DTD

Item	Function	Reference	Status	Requirement
RLP-C-S-001	Inter-Location Server Service Result		M	RLP-C-S-002 AND RLP-C-S-003
RLP-C-S-002	RLP Header	11.2.2	O	

Item	Function	Reference	Status	Requirement
RLP-C-S-003	Standard Roaming Location Immediate Answer	11.2.2	M	
RLP-C-S-004	Standard Roaming Location Immediate Report	11.2.2	O	RLP-F-S-002
RLP-C-S-005	Triggered Roaming Location Reporting Answer	11.2.2	O	RLP-C-S-006 RLP-F-S-002
RLP-C-S-006	Triggered Roaming Location Report	11.2.2	O	RLP-C-S-005 RLP-F-S-002
RLP-C-S-007	Triggered Roaming Location Reporting Stop Answer	11.2.2	O	RLP-F-S-002
RLP-C-S-014	Triggered Roaming Location Reporting Pause Report	11.2.2	O	
RLP-C-S-015	Triggered Roaming Location Reporting Query Answer	11.2.2	O	
RLP-C-S-016	Triggered Roaming Location Query Report	11.2.2	O	
RLP-C-S-008	Standard Roaming Location Report	11.2.2	O	
RLP-C-S-009	Standard Roaming Location Report Answer	11.2.2	O	
RLP-C-S-010	Emergency Roaming Location Immediate Answer	11.2.2	O	
RLP-C-S-011	Standard SUPL Roaming Location Immediate Answer	11.2.2	O	
RLP-C-S-012	Standard SUPL Roaming Position	11.2.2	O	RLP-B-S-008
RLP-C-S-013	Extension Message	11.2.2	M	

B.1.4 Roaming Header

Item	Function	Reference	Status	Requirement
RLP-D-S-001	locationserver	7.3.1.1	M	
RLP-D-S-002	client	7.3.1.1	M	
RLP-D-S-003	serving_node_action	7.3.1.1	M	
RLP-D-S-004	net_param	7.3.1.1	O	
RLP-D-S-005	supported_shapes	7.3.1.1	M	

B.1.5 Standard Roaming Location Immediate Request

Item	Function	Reference	Status	Requirement
RLP-E-S-001	msid	7.3.2.1.1	M	
RLP-E-S-002	codeword	7.3.2.1.1	O	
RLP-E-S-003	eqop	7.3.2.1.1	O	

Item	Function	Reference	Status	Requirement
RLP-E-S-004	geo_info	7.3.2.1.1	O	
RLP-E-S-005	loc_type	7.3.2.1.1	O	
RLP-E-S-006	prio	7.3.2.1.1	O	
RLP-E-S-007	pushaddr	7.3.2.1.1	O	
RLP-E-S-008	Extension parameters	7.3.2.1.1	O	

B.1.6 Standard Roaming Location Immediate Answer

Item	Function	Reference	Status	Requirement
RLP-F-S-001	pos	7.3.2.1.2	M	
RLP-F-S-002	req_id	7.3.2.1.2	O	
RLP-F-S-003	result	7.3.2.1.2	M	
RLP-F-S-004	add_info	7.3.2.1.2	O	
RLP-F-S-005	Extension parameters	7.3.2.1.2	O	

B.1.7 Standard Roaming Location Immediate Report

Item	Function	Reference	Status	Requirement
RLP-G-S-001	req_id	7.3.2.1.3	M	
RLP-G-S-002	pos	7.3.2.1.3	M	
RLP-G-S-003	Extension parameters	7.3.2.1.3	O	

B.1.8 Triggered Roaming Location Reporting Request

Item	Function	Reference	Status	Requirement
RLP-H-S-001	msid	7.3.3.1.1	M	
RLP-H-S-002	codeword	7.3.3.1.1	O	
RLP-H-S-003	interval	7.3.3.1.1	O	
RLP-H-S-004	start_time	7.3.3.1.1	O	
RLP-H-S-005	stop_time	7.3.3.1.1	O	
RLP-H-S-006	duration	7.3.3.1.1	O	
RLP-H-S-007	tlrr_event	7.3.3.1.1	M	
RLP-H-S-008	qop	7.3.3.1.1	O	
RLP-H-S-009	geo info	7.3.3.1.1	O	
RLP-H-S-010	pushaddr	7.3.3.1.1	O	
RLP-H-S-011	loc type	7.3.3.1.1	O	
RLP-H-S-012	prio	7.3.3.1.1	O	
RLP-H-S-013	Extension parameters	7.3.3.1.1	O	
RLP-H-S-014	lcs_ref	7.3.3.1.1	O	

B.1.9 Triggered Roaming Location Reporting Answer

Item	Function	Reference	Status	Requirement
RLP-I-S-001	req_id	7.3.3.1.2	M	
RLP-I-S-002	lcs_ref	7.3.3.1.2	O	
RLP-I-S-003	result	7.3.3.1.2	M	
RLP-I-S-004	add_info	7.3.3.1.2	O	

B.1.10 Triggered Roaming Location Report

Item	Function	Reference	Status	Requirement
RLP-J-S-001	req_id	7.3.3.1.3	M	

Item	Function	Reference	Status	Requirement
RLP-J-S-002	lcs_ref	7.3.3.1.3	O	
RLP-J-S-003	trl_pos	7.3.3.1.3	M	
RLP-J-S-004	time_remaining	7.3.3.1.3	O	
RLP-J-S-005	Extension parameters	7.3.3.1.3	O	

B.1.11 Triggered Roaming Location Reporting Stop Request

Item	Function	Reference	Status	Requirement
RLP-K-S-001	req_id	7.3.3.1.4	M	
RLP-K-S-002	Extension parameters	7.3.3.1.4	O	
RLP-K-S-003	lcs_ref	7.3.3.1.4	O	

B.1.12 Triggered Roaming Location Reporting Stop Answer

Item	Function	Reference	Status	Requirement
RLP-L-S-001	req_id	7.3.3.1.5	M	
RLP-L-S-002	result	7.3.3.1.5	M	
RLP-L-S-003	add_info	7.3.3.1.5	O	
RLP-L-S-004	Extension parameters	7.3.3.1.5	O	

B.1.13 Emergency Roaming Location Immediate Request

Item	Function	Reference	Status	Requirement
RLP-M-S-001	msid	7.3.4.1.1	M	
RLP-M-S-002	esrd	7.3.4.1.1	O	
RLP-M-S-003	esrk	7.3.4.1.1	O	
RLP-M-S-004	eqop	7.3.4.1.1	O	
RLP-M-S-005	geo_info	7.3.4.1.1	O	
RLP-M-S-006	loc_type	7.3.4.1.1	O	
RLP-M-S-007	Extension parameters	7.3.4.1.1	O	

B.1.14 Emergency Roaming Location Immediate Answer

Item	Function	Reference	Status	Requirement
RLP-N-S-001	eme_pos	7.3.4.1.2	M	
RLP-N-S-002	result	7.3.4.1.2	M	
RLP-N-S-003	add_info	7.3.4.1.2	O	
RLP-N-S-004	Extension parameters	7.3.4.1.2	O	

B.1.15 Support for Identity Elements

Item	Function	Reference	Status	Requirement
RLP-O-S-001	msid	[OMA-MLP] 5.2.2.1	M	
RLP-O-S-002	codeword	[OMA-MLP] 5.2.2.1	O	
RLP-O-S-003	esrd	[OMA-MLP] 5.2.2.1	O	
RLP-O-S-004	esrk	[OMA-MLP] 5.2.2.1	O	
RLP-O-S-005	session	[OMA-MLP] 5.2.2.1	O	

B.1.16 Support for Function Elements

Item	Function	Reference	Status	Requirement
RLP-P-S-001	eme_event	7.2.2	O	
RLP-P-S-002	tlrr_event	7.2.2	O	
RLP-P-S-003	ms_action	7.2.2	O	
RLP-P-S-004	interval	7.2.2	O	
RLP-P-S-005	loc_type	7.2.2	O	
RLP-P-S-006	prio	7.2.2	O	
RLP-P-S-007	pushaddr	7.2.2	O	
RLP-P-S-008	req_id	7.2.2	O	
RLP-P-S-009	lcs_ref	7.2.2	O	
RLP-P-S-010	start_time	7.2.2	O	
RLP-P-S-011	stop_time	7.2.2	O	
RLP-P-S-012	url	7.2.2	O	
RLP-P-S-013	time_remaining	7.2.2	O	

B.1.17 Support for Location Elements

Item	Function	Reference	Status	Requirement
RLP-Q-S-001	pos	7.2.3	M	
RLP-Q-S-002	eme_pos	7.2.3	O	
RLP-Q-S-003	pd	7.2.3	M	
RLP-Q-S-004	poserr	7.2.3	M	
RLP-Q-S-005	time	7.2.3	M	
RLP-Q-S-006	alt	7.2.3	O	
RLP-Q-S-007	alt_unc	7.2.3	O	
RLP-Q-S-0??	civicloc	7.2.3	O	
RLP-Q-S-0??	civicloc_element	7.2.3	O	
RLP-Q-S-008	direction	7.2.3	O	
RLP-Q-S-009	speed	7.2.3	O	
RLP-Q-S-010	lev_conf	7.2.3	O	
RLP-Q-S-011	qop_not_met	7.2.3	O	
RLP-Q-S-012	geo_info	7.2.3	O	

B.1.18 Support for Result Elements

Item	Function	Reference	Status	Requirement
RLP-R-S-001	add_info	[OMA-MLP] 5.2.2.4	O	
RLP-R-S-002	result	[OMA-MLP] 5.2.2.4	M	

B.1.19 Support for Shape Elements

Item	Function	Reference	Status	Requirement
RLP-S-S-S01	shape	[OMA-MLP] 5.2.2.5	M	RLP-S-S-S02 OR RLP-S-S-S03 OR RLP-S-S-S04 OR RLP-S-S-S05 OR RLP-S-S-S06 OR RLP-S-S-S07 OR RLP-S-S-S08 OR

Item	Function	Reference	Status	Requirement
				RLP-S-S-S09 OR RLP-S-S-S10 OR RLP-S-S-S11
RLP-S-S-S02	Point	[OMA-MLP] 5.2.2.5	O	
RLP-S-S-S03	LineString	[OMA-MLP] 5.2.2.5	O	
RLP-S-S-S04	Box	[OMA-MLP] 5.2.2.5	O	
RLP-S-S-S05	LinearRing	[OMA-MLP] 5.2.2.5	O	
RLP-S-S-S06	Polygon	[OMA-MLP] 5.2.2.5	O	
RLP-S-S-S07	CircularArcArea	[OMA-MLP] 5.2.2.5	O	
RLP-S-S-S08	EllipticalArea	[OMA-MLP] 5.2.2.5	O	
RLP-S-S-S09	MultiLineString	[OMA-MLP] 5.2.2.5	O	
RLP-S-S-S10	MultiPoint	[OMA-MLP] 5.2.2.5	O	
RLP-S-S-S11	MultiPolygon	[OMA-MLP] 5.2.2.5	O	

B.1.20 Support for Quality of Position Elements

Item	Function	Reference	Status	Requirement
RLP-T-S-001	eqop	[OMA-MLP] 5.2.2.6	O	
RLP-T-S-002	qop	[OMA-MLP] 5.2.2.6	O	
RLP-T-S-003	ll_acc	[OMA-MLP] 5.2.2.6	O	
RLP-T-S-004	hor_acc	[OMA-MLP] 5.2.2.6	O	
RLP-T-S-005	max_loc_age	[OMA-MLP] 5.2.2.6	O	
RLP-T-S-006	resp_req	[OMA-MLP] 5.2.2.6	O	
RLP-T-S-007	resp_timer	[OMA-MLP] 5.2.2.6	O	
RLP-T-S-07	alt_acc	[OMA-MLP] 5.2.2.6	O	

B.1.21 Support for Network Parameter Elements

Item	Function	Reference	Status	Requirement
RLP-U-S-001	net_param	7.2.7	O	
RLP-U-S-002	gsm_net_param	7.2.7	O	RLP-U-S-005
RLP-U-S-003	wcdma_net_param	7.2.7	O	RLP-U-S-005
RLP-U-S-004	cdma_net_param	7.2.7	O	
RLP-U-S-005	neid	7.2.7	O	RLP-U-S-006 OR

Item	Function	Reference	Status	Requirement
				RLP-U-S-008
RLP-U-S-006	vmcscid	7.2.7	O	
RLP-U-S-007	vlrid	7.2.7	O	
RLP-U-S-008	sgsnid	7.2.7	O	
RLP-U-S-014	mme_name	7.2.7	O	
RLP-U-S-009	imsi	7.2.7	O	
RLP-U-S-010	h_ls	7.2.7	O	
RLP-U-S-011	v_ls	7.2.7	O	
RLP-U-S-012	pce	7.2.7	O	
RLP-U-S-013	lcs_periodic_info	7.2.7	O	

B.1.22 Support for Roaming Context and Privacy Elements

Item	Function	Reference	Status	Requirement
RLP-V-S-001	client	7.2.8	M	
RLP-V-S-002	id	7.2.8	M	
RLP-V-S-003	requestor	7.2.8	O	
RLP-V-S-004	pwd	7.2.8	O	
RLP-V-S-005	serviceid	7.2.8	O	
RLP-V-S-006	requestmode	7.2.8	M	
RLP-V-S-007	locationserver	7.2.8	M	
RLP-V-S-008	clientname	7.2.8	O	
RLP-V-S-009	serving_node_action	7.2.8	M	
RLP-V-S-010	poi	7.2.8	M	
RLP-V-S-011	pseudoid	7.2.8	M	
RLP-V-S-012	servicetype	7.2.8	M	
RLP-V-S-013	supported_shapes	7.2.8	O	

B.1.23 Service attributes

Item	Function	Reference	Status	Requirement
RLP-W-S-001	res_type	[OMA-MLP] 5.3.85	M	
RLP-W-S-002	ver	[OMA-MLP] 5.3.85	M	
RLP-W-S-003	recv_role	8.40.1	M	

B.1.24 Standard SUPL Roaming

Item	Function	Reference	Status	Requirement
RLP-X-S-001	supl_session_id	7.3.5	M	
RLP-X-S-002	supl_message	7.3.5	M	
RLP-X-S-006	supl_key_refresh	7.3.5	O	
RLP-X-S-003	result	7.3.5	M	
RLP-X-S-004	add_info	7.3.5	O	
RLP-X-S-005	Extension parameters	7.3.5	O	

B.1.25 Standard Roaming Location Report Answer

Item	Function	Reference	Status	Requirement
RLP-Y-S-001	result	7.3.6.1.2	M	
RLP-Y-S-002	add_info	7.3.6.1.2	O	

Item	Function	Reference	Status	Requirement
RLP-Y-S-003	Extension parameters	7.3.6.1.2	O	

B.1.26 Standard Roaming Location Report

Item	Function	Reference	Status	Requirement
RLP-Z-S-001	pos	7.3.6.1.1	M	
RLP-Z-S-002	Extension parameters	7.3.6.1.1	O	

B.1.27 Transport mechanisms

Item	Function	Reference	Status	Requirement
RLP-AA-S-001	Support of HTTP mapping	7.1	M	
RLP-AA-S-002	Support of port 7273	11	O	
RLP-AA-S-003	Support of port 7274	11	O	
RLP-AA-S-004	Support of transfer over other ports	11	O	

B.1.28 Services

Item	Function	Reference	Status	Requirement
RLP-BB-S-001	Standard Roaming Location Immediate Service	7.3.2	M	RLP-B-S-003 AND RLP-C-S-003 AND RLP-C-S-004
RLP-BB-S-002	Triggered Roaming Location Reporting Service	7.3.3	O	RLP-B-S-004 AND RLP-B-S-005 AND RLP-C-S-005 AND RLP-C-S-006 AND RLP-C-S-007
RLP-BB-S-002	Emergency Roaming Location Immediate Service	7.3.4	O	RLP-B-S-006 AND RLP-C-S-010
RLP-BB-S-003	Standard SUPL Roaming Location Immediate Service	7.3.5	O	RLP-B-S-007 AND RLP-B-S-008 AND RLP-C-S-011 AND RLP-C-S-012
RLP-BB-S-004	Standard Roaming Location Reporting Service	7.3.6	O	RLP-C-S-008 AND RLP-C-S-009

B.1.29 Triggered Roaming Location Reporting Pause Report

Item	Function	Reference	Status	Requirement
RLP-CC-C-002	msid	7.4.3.6	M	
RLP-CC-C-001	req_id	7.4.3.6	M	
RLP-CC-C-003	extension parameter	7.4.3.6	O	
RLP-CC-C-004	lcs_ref	7.4.3.6	O	

B.1.30 Triggered Roaming Location Reporting Query Request

Item	Function	Reference	Status	Requirement
RLP-DD-C-001	extension parameter	7.3.3.7	O	

B.1.31 Triggered Roaming Location Reporting Query Answer

Item	Function	Reference	Status	Requirement
RLP-EE-C-001	msid	7.3.3.8	M	
RLP-EE-C-002	req_id	7.3.3.8	M	
RLP-EE-C-003	trlrr	7.3.3.8	O	
RLP-EE-C-004	result	7.3.3.8	M	
RLP-EE-C-005	add_info	7.3.3.8	O	
RLP-EE-C-006	extension parameter	7.3.3.8	O	

B.1.32 Triggered Roaming Location Query Report

Item	Function	Reference	Status	Requirement
RLP-FF-C-001	query_id	7.3.3.9	M	
RLP-FF-C-002	trigger_data	7.3.3.9	O	
RLP-FF-C-003	extension parameter	7.3.3.9	O	

B.2 Client side requirements

B.2.1 General Requirements

Item	Function	Reference	Status	Requirement
RLP-A-C-001	Parsing of DTDs	6.1	M	
RLP-A-C-002	Invalid values	6.3	M	
RLP-A-C-003	Support of ESPG 4326	6.5	M	
RLP-A-C-004	Version handling	6.2	M	
RLP-A-C-005	Quality of Position	6.4	O	
RLP-A-C-006	Target Identities, support of MSISDN	6.7	M	
RLP-A-C-007	Priority	6.6	O	

B.2.2 Inter-Location Server Service Initiation DTD

Item	Function	Reference	Status	Requirement
RLP-B-C-001	Inter-Location Server Service Initiation	11.2.1	M	RLP-B-C-002 AND RLP-B-C-003
RLP-B-C-002	RLP Header	11.2.1	M	
RLP-B-C-003	Standard Roaming Location Immediate Request	11.2.1	M	RLP-C-C-003
RLP-B-C-004	Triggered Roaming Location Reporting Request	11.2.1	O	RLP-C-C-005 AND RLP-C-C-006 AND RLP-C-C-007
RLP-B-C-005	Triggered Roaming Location Reporting Stop Request	11.2.1	O	RLP-C-C-007
RLP-B-C-011	Triggered Roaming Location Reporting Query Request	11.2.1		
RLP-B-C-006	Emergency Roaming Location Immediate	11.2.1	O	RLP-C-C-008

Item	Function	Reference	Status	Requirement
	Request			
RLP-B-C-007	Standard SUPL Roaming Location Immediate Request	11.2.1	O	RLP-C-C-009
RLP-B-C-008	Standard SUPL Roaming Location Position	11.2.1	O	RLP-C-C-010
RLP-B-C-010	Extension Message	11.2.1	O	

B.2.3 Inter-Location Server Service Result DTD

Item	Function	Reference	Status	Requirement
RLP-C-C-001	Inter-Location Server Service Result	11.2.2	M	RLP-C-C-002 AND RLP-C-C-003
RLP-C-C-002	RLP Header	11.2.2	O	
RLP-C-C-003	Standard Roaming Location Immediate Answer	11.2.2	M	
RLP-C-C-004	Standard Roaming Location Immediate Report	11.2.2	O	RLP-F-C-002
RLP-C-C-005	Triggered Roaming Location Reporting Answer	11.2.2	O	RLP-C-C-006
RLP-C-C-006	Triggered Roaming Location Report	11.2.2	O	RLP-C-C-005
RLP-C-C-007	Triggered Roaming Location Reporting Stop Answer	11.2.2	O	
RLP-C-C-014	Triggered Roaming Location Reporting Pause Report	11.2.2	O	
RLP-C-C-015	Triggered Roaming Location Reporting Query Answer	11.2.2	O	
RLP-C-C-016	Triggered Roaming Location Query Report	11.2.2	O	
RLP-C-C-008	Standard Roaming Location Report	11.2.2	O	
RLP-C-C-009	Standard Roaming Location Report Answer	11.2.2	O	
RLP-C-C-010	Emergency Roaming Location Immediate Answer	11.2.2	O	
RLP-C-C-011	Standard SUPL Roaming Location Immediate Answer	11.2.2	O	
RLP-C-C-012	Standard SUPL Roaming Position	11.2.2	O	RLP-B-C-008
RLP-C-C-013	Extension Message	11.2.2	O	

B.2.4 Roaming Header

Item	Function	Reference	Status	Requirement
RLP-D-C-001	locationserver	7.3.1.1	M	
RLP-D-C-002	client	7.3.1.1	O	
RLP-D-C-003	serving_node_action	7.3.1.1	M	
RLP-D-C-004	net_param	7.3.1.1	O	
RLP-D-C-005	supported_shapes	7.3.1.1	M	

B.2.5 Standard Roaming Location Immediate Request

Item	Function	Reference	Status	Requirement
RLP-E-C-001	msid	7.3.2.1.1	M	
RLP-E-C-002	codeword	7.3.2.1.1	O	
RLP-E-C-003	eqop	7.3.2.1.1	O	
RLP-E-C-004	geo_info	7.3.2.1.1	O	
RLP-E-C-005	loc_type	7.3.2.1.1	O	
RLP-E-C-006	prio	7.3.2.1.1	O	
RLP-E-C-007	pushaddr	7.3.2.1.1	O	
RLP-E-C-008	Extension parameters	7.3.2.1.1	O	

B.2.6 Standard Roaming Location Immediate Answer

Item	Function	Reference	Status	Requirement
RLP-F-C-001	pos	7.3.2.1.2	M	
RLP-F-C-002	req_id	7.3.2.1.2	O	
RLP-F-C-003	result	7.3.2.1.2	M	
RLP-F-C-004	add_info	7.3.2.1.2	O	
RLP-F-C-005	Extension parameters	7.3.2.1.2	O	

B.2.7 Standard Roaming Location Immediate Report

Item	Function	Reference	Status	Requirement
RLP-G-C-001	req_id	7.3.2.1.3	O	
RLP-G-C-002	pos	7.3.2.1.3	M	
RLP-G-C-003	Extension parameters	7.3.2.1.3	O	

B.2.8 Triggered Roaming Location Reporting Request

Item	Function	Reference	Status	Requirement
RLP-H-C-001	msid	7.3.3.1.1	M	
RLP-H-C-002	codeword	7.3.3.1.1	O	
RLP-H-C-003	interval	7.3.3.1.1	O	
RLP-H-C-004	start_time	7.3.3.1.1	O	
RLP-H-C-005	stop_time	7.3.3.1.1	O	
RLP-H-C-006	duration	7.3.3.1.1	O	
RLP-H-C-007	tlrr_event	7.3.3.1.1	M	
RLP-H-C-008	qop	7.3.3.1.1	O	
RLP-H-C-009	geo info	7.3.3.1.1	O	
RLP-H-C-010	pushaddr	7.3.3.1.1	O	
RLP-H-C-011	loc type	7.3.3.1.1	O	
RLP-H-C-012	prio	7.3.3.1.1	O	
RLP-H-C-013	Extension parameters	7.3.3.1.1	O	

Item	Function	Reference	Status	Requirement
RLP-H-C-014	lcs_ref	7.3.3.1.1	O	

B.2.9 Triggered Roaming Location Reporting Answer

Item	Function	Reference	Status	Requirement
RLP-I-C-001	req_id	7.3.3.1.2	M	
RLP-I-C-002	lcs_ref	7.3.3.1.2	O	
RLP-I-C-003	result	7.3.3.1.2	M	
RLP-I-C-004	add_info	7.3.3.1.2	O	

B.2.10 Triggered Roaming Location Report

Item	Function	Reference	Status	Requirement
RLP-J-C-001	req_id	7.3.3.1.3	M	
RLP-J-C-002	lcs_ref	7.3.3.1.3	O	
RLP-J-C-003	trl_pos	7.3.3.1.3	M	
RLP-J-C-004	time_remaining	7.3.3.1.3	O	
RLP-J-C-005	Extension parameters	7.3.3.1.3	O	

B.2.11 Triggered Roaming Location Reporting Stop Request

Item	Function	Reference	Status	Requirement
RLP-K-C-001	req_id	7.3.3.1.4	M	
RLP-K-C-002	Extension parameters	7.3.3.1.4	O	
RLP-K-C-003	lcs_ref	7.3.3.1.4	O	

B.2.12 Triggered Roaming Location Reporting Stop Answer

Item	Function	Reference	Status	Requirement
RLP-L-C-001	req_id	7.3.3.1.5	M	
RLP-L-C-002	result	7.3.3.1.5	M	
RLP-L-C-003	add_info	7.3.3.1.5	O	
RLP-L-C-004	Extension parameters	7.3.3.1.5	O	

B.2.13 Emergency Roaming Location Immediate Request

Item	Function	Reference	Status	Requirement
RLP-M-C-001	msid	7.3.4.1.1	M	
RLP-M-C-002	esrd	7.3.4.1.1	O	
RLP-M-C-003	esrk	7.3.4.1.1	O	
RLP-M-C-004	eqop	7.3.4.1.1	O	
RLP-M-C-005	geo_info	7.3.4.1.1	O	
RLP-M-C-006	loc_type	7.3.4.1.1	O	
RLP-M-C-007	Extension parameters	7.3.4.1.1	O	

B.2.14 Emergency Roaming Location Immediate Answer

Item	Function	Reference	Status	Requirement
RLP-N-C-001	eme_pos	7.3.4.1.2	M	
RLP-N-C-002	result	7.3.4.1.2	M	
RLP-N-C-003	add_info	7.3.4.1.2	O	
RLP-N-C-004	Extension parameters	7.3.4.1.2	O	

B.2.15 Support for Identity Elements

Item	Function	Reference	Status	Requirement
RLP-O-C-001	msid	[OMA-MLP] 5.2.2.1	M	
RLP-O-C-002	codeword	[OMA-MLP] 5.2.2.1	O	
RLP-O-C-003	esrd	[OMA-MLP] 5.2.2.1	O	
RLP-O-C-004	esrk	[OMA-MLP] 5.2.2.1	O	
RLP-O-C-005	session	[OMA-MLP] 5.2.2.1	O	

B.2.16 Support for Function Elements

Item	Function	Reference	Status	Requirement
RLP-P-C-001	eme_event	7.2.2	O	
RLP-P-C-002	tlrr_event	7.2.2	O	
RLP-P-C-003	ms_action	7.2.2	O	
RLP-P-C-004	interval	7.2.2	O	
RLP-P-C-005	loc_type	7.2.2	O	
RLP-P-C-006	prio	7.2.2	O	
RLP-P-C-007	pushaddr	7.2.2	O	
RLP-P-C-008	req_id	7.2.2	O	
RLP-P-C-009	lcs_ref	7.2.2	O	
RLP-P-C-010	start_time	7.2.2	O	
RLP-P-C-011	stop_time	7.2.2	O	
RLP-P-C-012	url	7.2.2	O	
RLP-P-C-013	time_remaining	7.2.2	O	

B.2.17 Support for Location Elements

Item	Function	Reference	Status	Requirement
RLP-Q-C-001	pos	7.2.3	M	
RLP-Q-C-002	eme_pos	7.2.3	O	
RLP-Q-C-003	pd	7.2.3	M	
RLP-Q-C-004	poserr	7.2.3	M	
RLP-Q-C-005	time	7.2.3	M	
RLP-Q-C-006	alt	7.2.3	O	
RLP-Q-C-007	alt_unc	7.2.3	O	
RLP-Q-C-0??	civicloc	7.2.3	O	
RLP-Q-C-0??	civicloc_element	7.2.3	O	
RLP-Q-C-008	direction	7.2.3	O	
RLP-Q-C-009	speed	7.2.3	O	
RLP-Q-C-010	lev_conf	7.2.3	O	
RLP-Q-C-011	qop_not_met	7.2.3		
RLP-Q-C-012	geo_info	7.2.3	O	

B.2.18 Support for Result Elements

Item	Function	Reference	Status	Requirement

Item	Function	Reference	Status	Requirement
RLP-R-C-001	add_info	[OMA-MLP] 5.2.2.4	O	
RLP-R-C-002	result	[OMA-MLP] 5.2.2.4	M	

B.2.19 Support for Shape Elements

Item	Function	Reference	Status	Requirement
RLP-S-C-001	shape	[OMA-MLP] 5.2.2.5	M	RLP-S-C-002 OR RLP-S-C-003 OR RLP-S-C-004 OR RLP-S-C-005 OR RLP-S-C-006 OR RLP-S-C-007 OR RLP-S-C-008 OR RLP-S-C-009 OR RLP-S-C-010 OR RLP-S-C-011
RLP-S-C-002	Point	[OMA-MLP] 5.2.2.5	O	
RLP-S-C-003	LineString	[OMA-MLP] 5.2.2.5	O	
RLP-S-C-004	Box	[OMA-MLP] 5.2.2.5	O	
RLP-S-S-005	LinearRing	[OMA-MLP] 5.2.2.5	O	
RLP-S-C-006	Polygon	[OMA-MLP] 5.2.2.5	O	
RLP-S-C-007	CircularArcArea	[OMA-MLP] 5.2.2.5	O	
RLP-S-C-008	EllipticalArea	[OMA-MLP] 5.2.2.5	O	
RLP-S-C-009	MultiLineString	[OMA-MLP] 5.2.2.5	O	
RLP-S-C-010	MultiPoint	[OMA-MLP] 5.2.2.5	O	
RLP-S-C-011	MultiPolygon	[OMA-MLP] 5.2.2.5	O	

B.2.20 Support for Quality of Position Elements

Item	Function	Reference	Status	Requirement
RLP-T-C-001	eqop	[OMA-MLP] 5.2.2.6	O	
RLP-T-C-002	qop	[OMA-MLP] 5.2.2.6	O	
RLP-T-C-003	ll_acc	[OMA-MLP] 5.2.2.6	O	
RLP-T-C-004	hor_acc	[OMA-MLP] 5.2.2.6	O	
RLP-T-C-005	max_loc_age	[OMA-MLP] 5.2.2.6	O	
RLP-T-C-006	resp_req	[OMA-MLP]	O	

Item	Function	Reference	Status	Requirement
		5.2.2.6		
RLP-T-C-007	resp_timer	[OMA-MLP] 5.2.2.6	O	
RLP-T-C-007	alt_acc	[OMA-MLP] 5.2.2.6	O	

B.2.21 Support for Network Parameter Elements

Item	Function	Reference	Status	Requirement
RLP-U-C-001	net_param	7.2.7	O	
RLP-U-C-002	gsm_net_param	7.2.7	O	RLP-U-C-005
RLP-U-C-003	wcdma_net_param	7.2.7	O	RLP-U-C-005
RLP-U-C-004	cdma_net_param	7.2.7	O	
RLP-U-C-005	neid		O	RLP-U-C-006 OR RLP-U-C-008
RLP-U-C-006	vmcscid	7.2.7	O	
RLP-U-C-007	vlrid	7.2.7	O	
RLP-U-C-008	sgsnid	7.2.7	O	
RLP-U-S-014	mme_name	7.2.7	O	
RLP-U-C-009	imsi	7.2.7	O	
RLP-U-C-010	h_ls	7.2.7	O	
RLP-U-C-011	v_ls	7.2.7	O	
RLP-U-C-012	pce	7.2.7	O	
RLP-U-C-013	lcs_periodic_info	7.2.7	O	

B.2.22 Support for Roaming Context and Privacy Elements

Item	Function	Reference	Status	Requirement
RLP-V-C-001	client	7.2.8	M	
RLP-V-C-002	id	7.2.8	M	
RLP-V-C-003	requestor	7.2.8	O	
RLP-V-C-004	pwd	7.2.8	O	
RLP-V-C-005	serviceid	7.2.8	O	
RLP-V-C-006	requestmode	7.2.8	M	
RLP-V-C-007	locationserver	7.2.8	M	
RLP-V-C-008	clientname	7.2.8	O	
RLP-V-C-009	serving_node_action	7.2.8	M	
RLP-V-C-010	poi	7.2.8	M	
RLP-V-C-011	pseudoid	7.2.8	M	
RLP-V-C-012	servicetype	7.2.8	M	
RLP-V-C-013	supported_shapes	7.2.8	O	

B.2.23 Service attributes

Item	Function	Reference	Status	Requirement
RLP-W-C-001	res_type	[OMA-MLP] 5.3.85	O	
RLP-W-C-002	ver	[OMA-MLP] 5.3.85	M	
RLP-W-C-003	recv_role	8.40.1	M	

B.2.24 Standard SUPL Roaming

Item	Function	Reference	Status	Requirement
RLP-X-C-001	supl_session_id	7.3.5	M	
RLP-X-C-002	supl_message	7.3.5	M	
RLP-X-S-006	supl_key_refresh	7.3.5	O	
RLP-X-C-003	result	7.3.5	M	
RLP-X-C-004	add_info	7.3.5	O	
RLP-X-C-005	Extension parameters	7.3.5	O	

B.2.25 Standard Roaming Location Report Answer

Item	Function	Reference	Status	Requirement
RLP-Y-C-001	result	7.3.6.1.2	M	
RLP-Y-C-002	add_info	7.3.6.1.2	O	
RLP-Y-C-003	Extension parameters	7.3.6.1.2	O	

B.2.26 Standard Roaming Location Report

Item	Function	Reference	Status	Requirement
RLP-Z-C-001	pos	7.3.6.1.1	M	
RLP-Z-C-002	Extension parameters	7.3.6.1.1	O	

B.2.27 Transport mechanisms

Item	Function	Reference	Status	Requirement
RLP-AA-C-001	Support of HTTP mapping	7.1	M	
RLP-AA-C-002	Support of port 7273	11	O	
RLP-AA-C-003	Support of port 7274	11	O	
RLP-AA-C-004	Support of transfer over other ports	11	O	

B.2.28 Services

Item	Function	Reference	Status	Requirement
RLP-BB-C-001	Standard Roaming Location Immediate Service	7.3.2	M	RLP-B-C-003 AND RLP-C-C-003 AND RLP-C-C-004
RLP-BB-C-002	Triggered Roaming Location Reporting Service	7.3.3	O	RLP-B-C-004 AND RLP-B-C-005 AND RLP-C-C-005 AND RLP-C-C-006 AND RLP-C-C-007
RLP-BB-C-002	Emergency Roaming Location Immediate Service	7.3.4	O	RLP-B-C-006 AND RLP-C-C-010
RLP-BB-C-003	Standard SUPL Roaming Location Immediate Service	7.3.5	O	RLP-B-C-007 AND RLP-B-C-008 AND RLP-C-C-011 AND RLP-C-C-012
RLP-BB-C-004	Standard Roaming Location Reporting Service	7.3.6	O	RLP-C-C-008 AND RLP-C-C-009

B.2.29 Triggered Roaming Location Reporting Pause Report

Item	Function	Reference	Status	Requirement
RLP-CC-S-001	req_id	7.4.3.6	M	
RLP-CC-S-002	msid	7.4.3.6	M	
RLP-CC-S-003	extension parameter	7.4.3.6	O	
RLP-CC-S-004	lcs_ref	7.4.3.6	O	

B.2.30 Triggered Roaming Location Reporting Query Request

Item	Function	Reference	Status	Requirement
RLP-DD-S-001	extension parameter	7.3.3.7	O	

B.2.31 Triggered Roaming Location Reporting Query Answer

Item	Function	Reference	Status	Requirement
RLP-EE-S-001	msid	7.3.3.8	M	
RLP-EE-S-002	req_id	7.3.3.8	M	
RLP-EE-S-003	trlrr	7.3.3.8	O	
RLP-EE-S-004	result	7.3.3.8	M	
RLP-EE-S-005	add_info	7.3.3.8	O	
RLP-EE-S-006	extension parameter	7.3.3.8	O	

B.2.32 Triggered Roaming Location Query Report

Item	Function	Reference	Status	Requirement
RLP-FF-S-001	query_id	7.3.3.9	M	
RLP-FF-S-002	trigger_data	7.3.3.9	O	
RLP-FF-S-003	extension parameter	7.3.3.9	O	