

# Roaming Location Protocol

Approved Version 1.2.2 – 04 Aug 2020

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**Open Mobile Alliance**  
OMA-TS-RLP-V1\_2\_2-20200804-A

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# Contents

<b>1. SCOPE</b> .....	<b>8</b>
<b>2. REFERENCES</b> .....	<b>9</b>
<b>2.1 NORMATIVE REFERENCES</b> .....	<b>9</b>
<b>2.2 INFORMATIVE REFERENCES</b> .....	<b>10</b>
<b>3. TERMINOLOGY AND CONVENTIONS</b> .....	<b>11</b>
<b>3.1 CONVENTIONS</b> .....	<b>11</b>
<b>3.2 DEFINITIONS</b> .....	<b>11</b>
<b>3.3 ABBREVIATIONS</b> .....	<b>11</b>
<b>4. INTRODUCTION</b> .....	<b>13</b>
<b>4.1 VERSION 1.0</b> .....	<b>13</b>
<b>4.2 VERSION 1.1</b> .....	<b>13</b>
<b>4.3 VERSION 1.2</b> .....	<b>13</b>
<b>5. INTER-LOCATION SERVER PROTOCOL</b> .....	<b>14</b>
<b>5.1 OVERVIEW</b> .....	<b>14</b>
5.1.1 Inter-Location Server protocol structure.....	14
5.1.2 Inter-Location Server protocol extension mechanism.....	14
<b>6. NORMATIVE BEHAVIOR</b> .....	<b>15</b>
<b>6.1 PARSING OF DTDS</b> .....	<b>15</b>
<b>6.2 INVALID VALUES</b> .....	<b>15</b>
<b>6.3 QOP</b> .....	<b>15</b>
6.3.1 Quality of Position in Request Messages.....	15
6.3.2 Quality of Position in Answer and Report Messages.....	15
<b>6.4 TYPES OF LOCATION INFORMATION</b> .....	<b>16</b>
6.4.1 Location Information in Request Messages.....	17
6.4.2 Location Information in Answer and Report Messages.....	17
<b>6.5 PRIORITY</b> .....	<b>17</b>
<b>6.6 TARGET IDENTITIES</b> .....	<b>17</b>
<b>7. MOBILE LOCATION SERVICE DEFINITIONS</b> .....	<b>18</b>
<b>7.1 TRANSPORT PROTOCOL LAYER DEFINITIONS</b> .....	<b>18</b>
<b>7.2 ELEMENT LAYER DEFINITIONS</b> .....	<b>18</b>
7.2.1 Identity Element Definitions.....	18
7.2.2 Function Element Definitions.....	18
7.2.3 Location Element Definitions.....	20
7.2.4 Result Element Definitions.....	21
7.2.5 Shape Element Definitions.....	21
7.2.6 Quality of Position Element Definitions.....	21
7.2.7 Network Parameters Element Definitions.....	22
7.2.8 Roaming Context and Privacy Element Definitions.....	25
7.2.9 SUPL Element Definitions.....	26
<b>7.3 SERVICE LAYER DEFINITIONS</b> .....	<b>26</b>
7.3.1 Header Components.....	26
7.3.2 Standard Roaming Location Immediate Service.....	28
7.3.3 Triggered Roaming Location Reporting Service.....	31
7.3.4 Emergency Roaming Location Immediate Service.....	41
7.3.5 Standard SUPL Roaming Location Immediate Service.....	44
7.3.6 Standard Roaming Location Reporting Service.....	46
7.3.7 General Error Message Definition.....	48
<b>8. ELEMENTS AND ATTRIBUTES IN DTD</b> .....	<b>49</b>
<b>8.1 AREA_INFO</b> .....	<b>49</b>
<b>8.2 CC</b> .....	<b>49</b>
<b>8.3 PSEUDOID</b> .....	<b>49</b>

<b>8.4</b>	<b>CELLID</b> .....	<b>49</b>
<b>8.5</b>	<b>CELLPARAMETERSID</b> .....	<b>50</b>
<b>8.6</b>	<b>UC_ID</b> .....	<b>50</b>
8.6.1	status .....	50
<b>8.7</b>	<b>SAC</b> .....	<b>50</b>
<b>8.8</b>	<b>CLIENT</b> .....	<b>51</b>
8.8.1	type .....	51
<b>8.9</b>	<b>CLIENTNAME</b> .....	<b>51</b>
<b>8.10</b>	<b>ID</b> .....	<b>51</b>
<b>8.11</b>	<b>IMSI</b> .....	<b>52</b>
<b>8.12</b>	<b>LAC</b> .....	<b>52</b>
<b>8.13</b>	<b>LMSI</b> .....	<b>52</b>
<b>8.14</b>	<b>MCC</b> .....	<b>52</b>
<b>8.15</b>	<b>MNC</b> .....	<b>52</b>
<b>8.16</b>	<b>NDC</b> .....	<b>53</b>
<b>8.17</b>	<b>NMR_ELEMENT</b> .....	<b>53</b>
8.17.1	arfcn .....	53
8.17.2	bsic .....	53
8.17.3	rxlev .....	54
<b>8.18</b>	<b>PCE</b> .....	<b>54</b>
<b>8.19</b>	<b>POI</b> .....	<b>54</b>
8.19.1	flag .....	54
<b>8.20</b>	<b>SERVING_NODE_ACTION</b> .....	<b>55</b>
8.20.1	passive_type .....	55
8.20.2	active_type .....	55
<b>8.21</b>	<b>PWD</b> .....	<b>56</b>
<b>8.22</b>	<b>SERVICEID</b> .....	<b>56</b>
<b>8.23</b>	<b>SERVICETYPE</b> .....	<b>56</b>
<b>8.24</b>	<b>SGSNID</b> .....	<b>57</b>
8.24.1	capability .....	57
<b>8.25</b>	<b>TA</b> .....	<b>58</b>
<b>8.26</b>	<b>REQUESTMODE</b> .....	<b>58</b>
8.26.1	type .....	58
<b>8.27</b>	<b>VLRID</b> .....	<b>58</b>
8.27.1	capability .....	59
<b>8.28</b>	<b>VLRNO</b> .....	<b>59</b>
<b>8.29</b>	<b>V_LS</b> .....	<b>59</b>
<b>8.30</b>	<b>VMSCID</b> .....	<b>59</b>
8.30.1	capability .....	60
<b>8.31</b>	<b>VMSCNO</b> .....	<b>60</b>
<b>8.32</b>	<b>CHANGE_AREA</b> .....	<b>60</b>
8.32.1	type .....	61
8.32.2	loc_estimates .....	61
<b>8.33</b>	<b>TARGET_AREA</b> .....	<b>61</b>
<b>8.34</b>	<b>EME_POS</b> .....	<b>61</b>
8.34.1	pos_method .....	63
<b>8.35</b>	<b>QOP_NOT_MET</b> .....	<b>63</b>
<b>8.36</b>	<b>ALT_ACC</b> .....	<b>63</b>
8.36.1	qop_class .....	64
8.36.2	h_ls .....	64
<b>8.37</b>	<b>SUPL_MESSAGE</b> .....	<b>64</b>
<b>8.38</b>	<b>SUPL_SESSION_ID</b> .....	<b>65</b>
8.38.1	notif_mode .....	65
<b>8.39</b>	<b>LCS_REF</b> .....	<b>65</b>
<b>8.40</b>	<b>SERVICE ATTRIBUTES</b> .....	<b>65</b>
8.40.1	recv_role .....	65
<b>8.41</b>	<b>SUPPORTED_SHAPES</b> .....	<b>66</b>

8.41.1	Point.....	66
8.41.2	Linestring.....	66
8.41.3	Polygon.....	66
8.41.4	Box.....	67
8.41.5	CircularArea.....	67
8.41.6	CircularArcArea.....	67
8.41.7	EllipticalArea.....	67
8.41.8	MultiLineString.....	68
8.41.9	MultiPoint.....	68
8.41.10	MultiPolygon.....	68
8.41.11	LinearRing.....	68
8.41.12	Altitude.....	69
<b>8.42</b>	<b>PRIMARYSCRAMBLINGCODE.....</b>	<b>69</b>
<b>8.43</b>	<b>UARFCN_UL.....</b>	<b>69</b>
<b>8.44</b>	<b>UARFCN_DL.....</b>	<b>69</b>
<b>8.45</b>	<b>UARFCN_NT.....</b>	<b>69</b>
<b>8.46</b>	<b>NID.....</b>	<b>70</b>
<b>8.47</b>	<b>SID.....</b>	<b>70</b>
<b>8.48</b>	<b>BASE_ID.....</b>	<b>70</b>
<b>8.49</b>	<b>BASE_LAT.....</b>	<b>70</b>
<b>8.50</b>	<b>BASE_LONG.....</b>	<b>71</b>
<b>8.51</b>	<b>REF_PN.....</b>	<b>71</b>
<b>8.52</b>	<b>SGSNNO.....</b>	<b>71</b>
<b>8.53</b>	<b>CORRELATION_ID.....</b>	<b>71</b>
<b>8.54</b>	<b>ESN.....</b>	<b>71</b>
<b>8.55</b>	<b>MEID.....</b>	<b>72</b>
<b>8.56</b>	<b>MPCAP.....</b>	<b>72</b>
<b>8.57</b>	<b>MSCID.....</b>	<b>72</b>
<b>8.58</b>	<b>PC_SSN.....</b>	<b>72</b>
<b>8.59</b>	<b>POS_TECH_SELECT.....</b>	<b>73</b>
8.59.1	type.....	74
<b>8.60</b>	<b>LOC_TYPE.....</b>	<b>74</b>
8.60.1	type.....	74
8.60.2	per_type.....	75
<b>8.61</b>	<b>LCS_PERIODIC_INFO.....</b>	<b>75</b>
8.61.1	short_circuit.....	75
8.61.2	prioritized.....	75
<b>8.62</b>	<b>REPORTINGPLMN.....</b>	<b>76</b>
8.62.1	tech.....	76
<b>8.63</b>	<b>SPCSETID.....</b>	<b>76</b>
<b>8.64</b>	<b>RAND.....</b>	<b>76</b>
<b>8.65</b>	<b>SLPFQDN.....</b>	<b>77</b>
<b>8.66</b>	<b>SPCSET_KEYLIFETIME.....</b>	<b>77</b>
<b>8.67</b>	<b>BATCH_COND.....</b>	<b>77</b>
8.67.1	batch_type.....	77
<b>8.68</b>	<b>LTE_CI.....</b>	<b>78</b>
<b>8.69</b>	<b>LTE_TA.....</b>	<b>78</b>
<b>8.70</b>	<b>MEASRESULTEUTRA.....</b>	<b>78</b>
8.70.1	rsrpResult.....	78
8.70.2	rsrqResult.....	78
<b>8.71</b>	<b>SECTOR_ID.....</b>	<b>79</b>
<b>8.72</b>	<b>MME-NAME.....</b>	<b>79</b>
<b>8.73</b>	<b>MINIMUMINTERVALTIME.....</b>	<b>79</b>
<b>8.74</b>	<b>AMF_NAME.....</b>	<b>79</b>
<b>8.75</b>	<b>NR_CI.....</b>	<b>80</b>
<b>9.</b>	<b>RESULT CODES.....</b>	<b>81</b>
9.1	RESULT CODES.....	81

<b>10.</b>	<b>ADAPTATION TO 3GPP LCS: (INFORMATIVE)</b> .....	<b>82</b>
<b>10.1</b>	<b>VERSION MAPPING BETWEEN 3GPP TS23.271 AND THIS SPECIFICATION</b> .....	<b>82</b>
<b>10.2</b>	<b>THE TERMINOLOGY MAPPING TABLE WITH 3GPP LCS SPECIFICATIONS</b> .....	<b>82</b>
<b>10.3</b>	<b>THE CORRESPONDING TERMS USED FOR THE LOCATION PROCEDURES IN 3GPP LCS DEFINITION</b> .....	<b>82</b>
<b>10.4</b>	<b>ERROR MAPPING (INFORMATIVE)</b> .....	<b>83</b>
<b>11.</b>	<b>HTTP MAPPING</b> .....	<b>84</b>
<b>11.1</b>	<b>LOCATION SERVICES USING HTTP</b> .....	<b>84</b>
<b>11.2</b>	<b>REQUEST AND RESPONSE ENCAPSULATION</b> .....	<b>85</b>
11.2.1	Inter-Location Server Service Initiation DTD .....	85
11.2.2	Inter-Location Server Service Result DTD .....	86
<b>APPENDIX A.</b>	<b>CHANGE HISTORY (INFORMATIVE)</b> .....	<b>87</b>
<b>A.1</b>	<b>APPROVED VERSION HISTORY</b> .....	<b>87</b>
<b>APPENDIX B.</b>	<b>STATIC CONFORMANCE REQUIREMENTS (NORMATIVE)</b> .....	<b>88</b>
<b>B.1</b>	<b>SERVER SIDE REQUIREMENTS (NORMATIVE)</b> .....	<b>88</b>
B.1.1	General Requirements .....	88
B.1.2	Inter-Location Server Service Initiation DTD .....	88
B.1.3	Inter-Location Server Service Result DTD .....	88
B.1.4	Roaming Header .....	89
B.1.5	Standard Roaming Location Immediate Request .....	89
B.1.6	Standard Roaming Location Immediate Answer .....	90
B.1.7	Standard Roaming Location Immediate Report .....	90
B.1.8	Triggered Roaming Location Reporting Request .....	90
B.1.9	Triggered Roaming Location Reporting Answer .....	90
B.1.10	Triggered Roaming Location Report .....	90
B.1.11	Triggered Roaming Location Reporting Stop Request .....	91
B.1.12	Triggered Roaming Location Reporting Stop Answer.....	91
B.1.13	Emergency Roaming Location Immediate Request .....	91
B.1.14	Emergency Roaming Location Immediate Answer .....	91
B.1.15	Support for Identity Elements .....	91
B.1.16	Support for Function Elements .....	92
B.1.17	Support for Location Elements .....	92
B.1.18	Support for Result Elements .....	92
B.1.19	Support for Shape Elements.....	92
B.1.20	Support for Quality of Position Elements .....	93
B.1.21	Support for Network Parameter Elements .....	93
B.1.22	Support for Roaming Context and Privacy Elements .....	94
B.1.23	Service attributes.....	94
B.1.24	Standard SUPL Roaming .....	94
B.1.25	Standard Roaming Location Report Answer .....	94
B.1.26	Standard Roaming Location Report.....	95
B.1.27	Transport mechanisms .....	95
B.1.28	Services .....	95
B.1.29	Triggered Roaming Location Reporting Pause Report .....	95
B.1.30	Triggered Roaming Location Reporting Query Request .....	95
B.1.31	Triggered Roaming Location Reporting Query Answer .....	95
B.1.32	Triggered Roaming Location Query Report .....	96
<b>B.2</b>	<b>CLIENT SIDE REQUIREMENTS</b> .....	<b>96</b>
B.2.1	General Requirements.....	96
B.2.2	Inter-Location Server Service Initiation DTD .....	96
B.2.3	Inter-Location Server Service Result DTD.....	97
B.2.4	Roaming Header .....	97
B.2.5	Standard Roaming Location Immediate Request .....	98
B.2.6	Standard Roaming Location Immediate Answer .....	98
B.2.7	Standard Roaming Location Immediate Report .....	98
B.2.8	Triggered Roaming Location Reporting Request .....	98

B.2.9 Triggered Roaming Location Reporting Answer ..... 99

B.2.10 Triggered Roaming Location Report ..... 99

B.2.11 Triggered Roaming Location Reporting Stop Request ..... 99

B.2.12 Triggered Roaming Location Reporting Stop Answer ..... 99

B.2.13 Emergency Roaming Location Immediate Request ..... 99

B.2.14 Emergency Roaming Location Immediate Answer ..... 99

B.2.15 Support for Identity Elements ..... 99

B.2.16 Support for Function Elements ..... 100

B.2.17 Support for Location Elements ..... 100

B.2.18 Support for Result Elements ..... 100

B.2.19 Support for Shape Elements ..... 101

B.2.20 Support for Quality of Position Elements ..... 101

B.2.21 Support for Network Parameter Elements ..... 102

B.2.22 Support for Roaming Context and Privacy Elements ..... 102

B.2.23 Service attributes ..... 102

B.2.24 Standard SUPL Roaming ..... 102

B.2.25 Standard Roaming Location Report Answer ..... 103

B.2.26 Standard Roaming Location Report ..... 103

B.2.27 Transport mechanisms ..... 103

B.2.28 Services ..... 103

B.2.29 Triggered Roaming Location Reporting Pause Report ..... 103

B.2.30 Triggered Roaming Location Reporting Query Request ..... 104

B.2.31 Triggered Roaming Location Reporting Query Answer ..... 104

B.2.32 Triggered Roaming Location Query Report ..... 104

## Figures

**Figure 1: RLP Overview ..... 14**

**Figure 2: Standard Roaming Location Immediate ..... 28**

**Figure 3: Triggered Roaming Location Reporting ..... 33**

**Figure 4: Emergency Roaming Location Immediate ..... 42**

**Figure 5: Standard SUPL Roaming Location Immediate ..... 44**

**Figure 6: Standard Roaming Location Report ..... 47**

# 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].



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## 2.2 Informative References

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[URL: http://www.openmobilealliance.org](http://www.openmobilealliance.org)
- [RFC3513] RFC 3513: “Internet Protocol Version 6 (IPv6) Addressing Architecture”  
[URL: http://www.ietf.org](http://www.ietf.org)
- [RFC796] RFC 796: “Address mapping”  
[URL: http://www.ietf.org](http://www.ietf.org)
- [UTC] ITU CCIR Recommendation “ITU-R-TF.460-4”

## 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

Location Server	Software and/or hardware entity offering location capabilities.
Lr	Reference point between Location Servers. See also [23.271].
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

<b>A-GPS</b>	Assisted GPS
<b>ANSI</b>	American National Standards Institute
<b>AoA</b>	Angle of Arrival
<b>AoD</b>	Angle of Departure

<b>DL</b>	DownLink
<b>DTD</b>	Document Type Definition
<b>E-OTD</b>	Enhanced Observed Time Difference (E-OTD)
<b>GMLC</b>	Gateway Mobile Location Center
<b>GMT</b>	Greenwich Mean Time
<b>GPS</b>	Global Positioning System
<b>HTTP</b>	Hypertext Transfer Protocol
<b>HTTPS</b>	HTTP Secure
<b>LCS</b>	Location Services
<b>MLC</b>	Mobile Location Center
<b>MLP</b>	Mobile Location Protocol
<b>MPC</b>	Mobile Positioning Center
<b>MS</b>	Mobile Station
<b>MSID</b>	Mobile Station Identifier
<b>MSISDN</b>	Mobile Station ISDN
<b>NR</b>	New Radio
<b>OMA</b>	Open Mobile Alliance
<b>OTDOA</b>	Observed Time Difference of Arrival
<b>SLP</b>	SUPL Location Platform
<b>SSL</b>	Secure Socket Layer
<b>SUPL</b>	Secure User Plane Location
<b>TDOA</b>	Time Difference of Arrival
<b>TLS</b>	Transport Layer Security
<b>UL</b>	UpLink
<b>URI</b>	Uniform Resource Identifier
<b>URL</b>	Uniform Resource Locator
<b>U-TDOA</b>	Uplink Time Difference of Arrival
<b>UTM</b>	Universal Transverse Mercator
<b>WAP</b>	Wireless Application Protocol
<b>WGS</b>	World Geodetic System
<b>XML</b>	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

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.

## 5. 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].

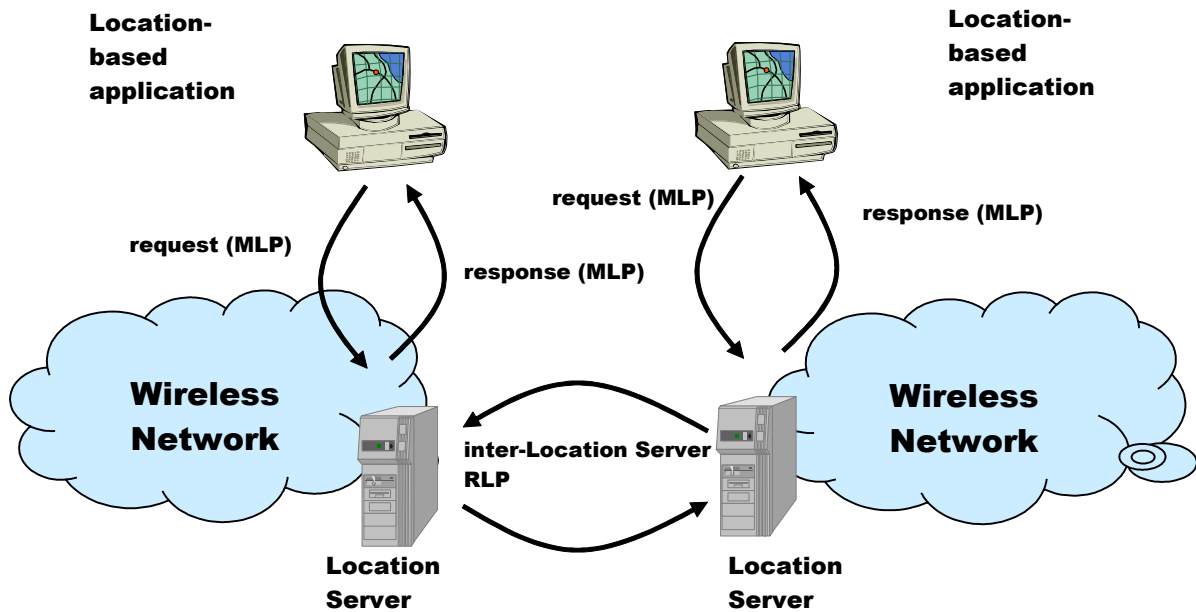


Figure 1: RLP Overview

#### 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 |
MS_OUTSIDE_AREA) #REQUIRED
loc_estimates (TRUE | FALSE) #REQUIRED>
<!ELEMENT velocity_event
(target_speed, no_of_reports?,
minimumIntervalTime?)>
<!ATTLIST velocity_event
type (INCREASING ABOVE | ABOVE | DECREASING BELOW
| BELOW) #REQUIRED
vel_estimates (TRUE | FALSE) #REQUIRED>

```

```

<!ELEMENT distance_event (target_distance,reference_object+,
no_of_reports?,
minimumIntervalTime?)>
<!ATTLIST distance_event
type (ENTERING_DISTANCE | LEAVING_DISTANCE |
WITHIN_DISTANCE | OUTSIDE_DISTANCE) #REQUIRED
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 minimumIntervalTime (#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 |
LAST_OR_CURRENT | INITIAL |
CURRENT_AND_INTERMEDIATE | NOTIF_VERIF_ONLY) "CURRENT"
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?)>
<!ELEMENT query_id (#PCDATA)>

```

## 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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Open Mobile Alliance Ltd. web site at
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 |
  BARO | BT | MBS | WLAN | NR_E-CID | Multi-RTT |
  DL-AoD | DL-TDOA | UL-TDOA | UL-AoA | 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 |
  BARO | BT | MBS | WLAN | NR_E-CID | Multi-RTT |
  DL-AoD | DL-TDOA | UL-TDOA | UL-AoA | 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 |
  BARO | BT | MBS | WLAN | NR E-CID | Multi-RTT |
  DL-AoD | DL-TDOA | UL-TDOA | UL-AoA | 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   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)	#REQUIRED	
	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_AND_CIVICLOC)	"SHAPE"	
	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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http://www.openmobilealliance.org/
-->
<!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 |
nr_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 nr_net_param (mcc?, mnc?, nr_ci?)>
<!ELEMENT neid (vmscid?, sgsnid?, vlrid? , mme_name?, amf_name?)>
<!ELEMENT vmscid (cc?, ndc?, vmscno)>
<!ATTLIST vmscid
  capability (1 | 2 | 3 | 4
| 5) #IMPLIED>
<!ELEMENT mme_name (#PCDATA)>
<!ELEMENT amf_name (#PCDATA)>
<!ELEMENT vlrid (cc?, ndc?, vlrno)>
<!ATTLIST vlrid
  capability (1 | 2 | 3 | 4
| 5) #IMPLIED>
<!ELEMENT sgsnid (cc?, ndc?, sgsnno)>
<!ATTLIST sgsnid
  capability (1 | 2 | 3 | 4
| 5) #IMPLIED>
<!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 nr_ci (#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 locationEncodingDescriptor EMPTY>
<!--
  r
-->
<!ATTLIST locationEncodingDescriptor
  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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Open Mobile Alliance Ltd. web site at
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 |
        NAME | E-MAIL | URL |
        SIPURL | IMS | MDN | ASID
        | ASPID)                  "MSISDN">
<!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">
<!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 |
  YES)                            "NO"
  EllipticalArea (NO | YES)       "NO"
  MultiLineString (NO |
  YES)                             "NO"

```

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

<!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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    All rights reserved

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>

Terms and conditions of use are available from the

```

```

Open Mobile Alliance Ltd. web site at
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>
      <servicetype>0005</servicetype>
      <id>theasp</id>
      <serviceid>0005</serviceid>
      <requestmode type="PASSIVE"/>
      <clientname>TheClientName</clientname>
      <pseudoid>358401234567</pseudoid>
    </client>
    <net_param>
      <neid>
        <vmscid capability="4">
          <cc>46</cc>
          <ndc>10</ndc>
          <vmscno>28544781612</vmscno>
        </vmscid>
      </neid>
      <imsi>217567810164</imsi>
    </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>
      <servicetype>0005</servicetype>
      <id>theasp</id>
      <serviceid>0005</serviceid>
      <requestmode type="ACTIVE"/>
      <clientname>TheClientName</clientname>
      <pseudoid>358401234567</pseudoid>
    </client>
    <net_param>
      <neid>
        <vmscid capability="4">
          <cc>46</cc>
          <ndc>10</ndc>
          <vmscno>28544781612</vmscno>
        </vmscid>
      </neid>
      <imsi>217567810164</imsi>
    </net_param>
  </rlp_hdr>
  ...
</rlp_svc_init>

```

### 7.3.2 Standard Roaming Location Immediate Service

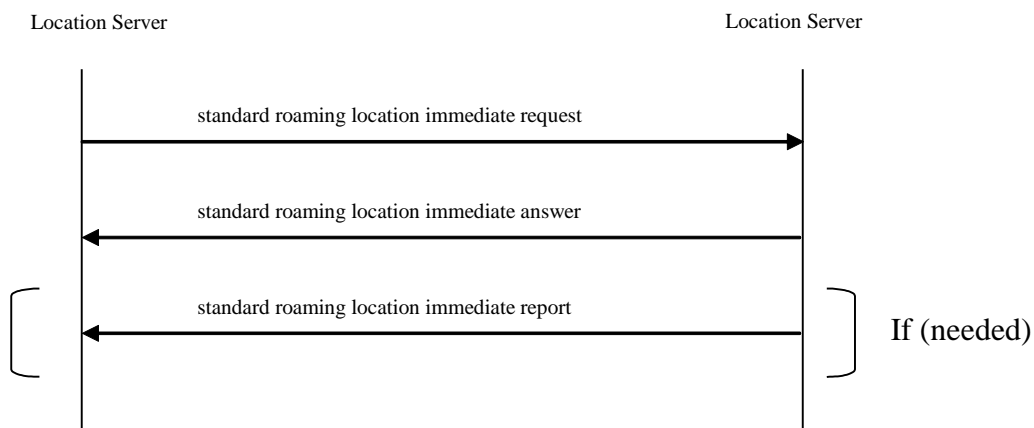
This is a standard service for requesting the location of one Mobile Subscriber while roaming. The service is used when a location response is required immediately (within a set time). This service may be initiated either synchronously or asynchronously.

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

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

<!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.

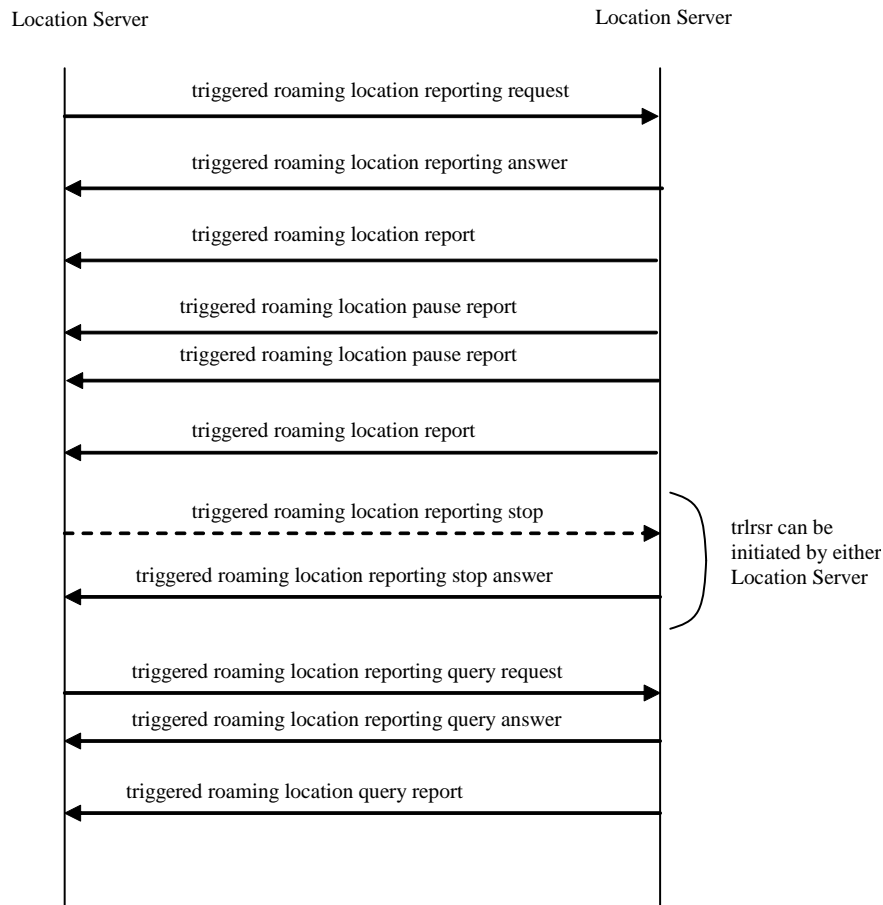
The Triggered Roaming Location Reporting Service MAY also include a Triggered Roaming Location Reporting Stop Request that SHALL be followed by one Triggered Roaming Location Reporting Stop Answer. Additionally a Triggered Roaming Location Reporting Stop Answer MAY be sent without preceeding Triggered 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 requests 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 trlrsr 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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Open Mobile Alliance Ltd. web site at
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>
  <tlrr_event>
<ms_action type="MS_AVAIL"/>
  </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 7.3.3.1-2:** 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>
        <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>
    </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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Open Mobile Alliance Ltd. web site at
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 7.3.3.2-2: 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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Open Mobile Alliance Ltd. web site at
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 tlrp and more tlrp will follow. The last tlrp within a location report will have attribute '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>
  </trl_pos>
</trlrep>

```

```

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

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

```

```

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

```

**Example 7.3.3.5-1**

```

<trlrpa ver="1.2.0">
  <req_id>25293</req_id>
</trlrpa>

```

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

<!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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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 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:

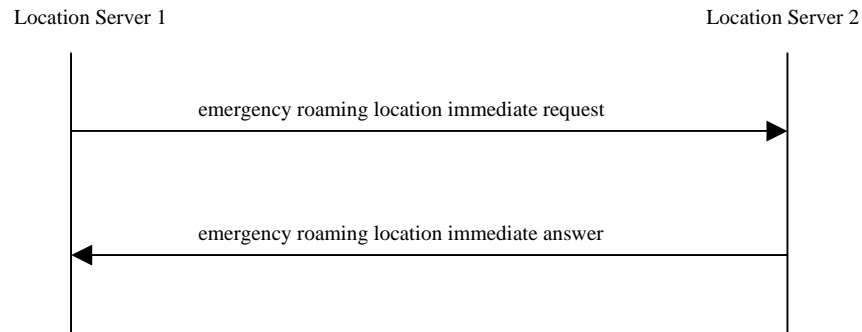


Figure 4: Emergency Roaming Location Immediate

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

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

<!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

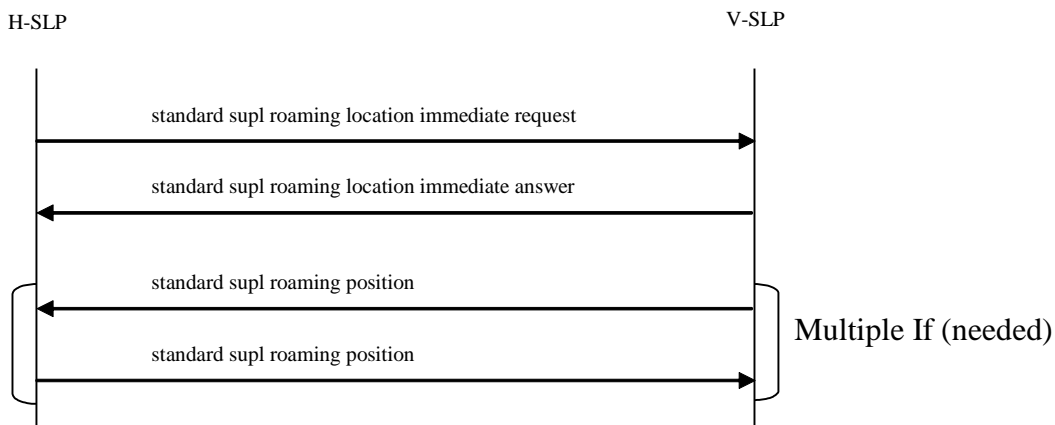
This is a SUPL standard service for using the Lr reference point to transfer SUPL messages between two SUPL enabled networks to determine the location of one Mobile Subscriber while roaming. The service is used when a location response is required immediately (within a set time).

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

<!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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Open Mobile Alliance Ltd. web site at
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>ABH97869786LUHGKSGDHFH85467POUIHG97697KHGKH</supl_message>
</ssrp>

```

**7.3.6 Standard Roaming Location Reporting Service**

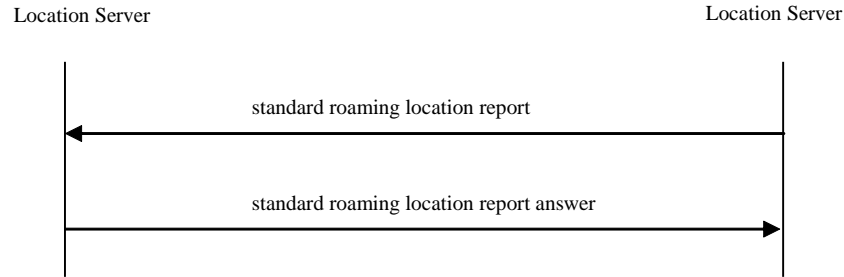
This is a standard location reporting service when a mobile subscriber wants an LCS client to receive the MS location, i.e., in the MO-LR case, while the Mobile Subscriber is roaming.

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>

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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

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

### 8.2 cc

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

### 8.3 pseudoid

<b>Description:</b>	
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.	
<b>Type:</b>	Element
<b>Format:</b>	Char string
<b>Defined values:</b>	
<b>Default value:</b>	-
<b>Example:</b>	<pseudoid>358401234567</pseudoid>
<b>Note:</b>	-

### 8.4 cellid

<b>Description:</b>	
Identifies the Cell identity in a GSM network	
<b>Type:</b>	Element
<b>Format:</b>	Char String
<b>Defined values:</b>	0-65535
<b>Default value:</b>	-
<b>Example:</b>	<cellid>546</cellid>

<b>Note:</b>	
--------------	--

## 8.5 cellparametersid

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

## 8.6 uc\_id

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

### 8.6.1 status

<b>Description:</b>	
Defines the status of the uc_id element.	
<b>Type:</b>	Attribute
<b>Format:</b>	Char String
<b>Defined values:</b>	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.
<b>Default value:</b>	CURRENT
<b>Example:</b>	<uc_id status="CURRENT">228435001</uc_id>
<b>Note:</b>	

## 8.7 sac

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

## 8.8 client

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

### 8.8.1 type

<b>Description:</b>	
The type of the client, i.e., Commercial, internal, emergency or lawful intercept.	
<b>Type:</b>	Attribute
<b>Format:</b>	Char String
<b>Defined values:</b>	1 Commercial or Value added client
	2 Lawful Intercept client
	3 Emergency Services Client
<b>Default value:</b>	-
<b>Example:</b>	<code>&lt;client type="1"&gt; &lt;id&gt;SomeId&lt;/id&gt; &lt;/client&gt;</code>
<b>Note:</b>	

## 8.9 clientname

<b>Description:</b>	
The name of the LCS Client stored in the Requesting Location Server. To be used for notification and verification purposes to the target UE.	
<b>Type:</b>	Element
<b>Format:</b>	Char String
<b>Defined values:</b>	-
<b>Default value:</b>	-
<b>Example:</b>	<code>&lt;clientname&gt;MLPFriendFinder&lt;/clientname&gt;</code>
<b>Note:</b>	

## 8.10 id

<b>Description:</b>	
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.	
<b>Type:</b>	Element
<b>Format:</b>	Char string
<b>Defined values:</b>	
<b>Default value:</b>	
<b>Example:</b>	<code>&lt;id&gt;358401234567&lt;/id&gt;</code>
<b>Note:</b>	

## 8.11 imsi

<b>Description:</b>	
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.	
<b>Type:</b>	Element
<b>Format:</b>	Char string
<b>Defined values:</b>	-
<b>Default value:</b>	-
<b>Example:</b>	<imsi>2344512344565</imsi>
<b>Note:</b>	The IMSI consists of not more than 15 digits.

## 8.12 lac

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

## 8.13 lmsi

<b>Description:</b>	
A local identity allocated by the VLR to a given subscriber for internal management of data in the VLR as defined in 29.002	
<b>Type:</b>	Element
<b>Format:</b>	Char String
<b>Defined values:</b>	-
<b>Default value:</b>	-
<b>Example:</b>	<lmsi>234</lmsi>
<b>Note:</b>	

## 8.14 mcc

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

## 8.15 mnc

<b>Description:</b>	
Specifies the mobile network code.	
<b>Type:</b>	Element

<b>Format:</b>	Char String
<b>Defined values:</b>	Up to 3 digits e.g., 15 for Vodafone
<b>Default value:</b>	-
<b>Example:</b>	<mnc>215</mnc>
<b>Note:</b>	

## 8.16 ndc

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

## 8.17 nmr\_element

<b>Description:</b>	
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.	
<b>Type:</b>	Element
<b>Format:</b>	(arfcn, bsic, rxlev)
<b>Defined values:</b>	-
<b>Default value:</b>	-
<b>Example:</b>	-
<b>Note:</b>	-

### 8.17.1 arfcn

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

### 8.17.2 bsic

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

### 8.17.3 rxlev

<b>Description:</b>	
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 $X = N - 110$ .	
<b>Type:</b>	Element
<b>Format:</b>	Char string
<b>Defined values:</b>	-
<b>Default value:</b>	-
<b>Example:</b>	<rxlev>12</rxlev>
<b>Note:</b>	

### 8.18 pce

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

### 8.19 poi

<b>Description:</b>	
Privacy Override Indicator. 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.	
<b>Type:</b>	Element
<b>Format:</b>	Char string
<b>Defined values:</b>	-
<b>Default value:</b>	
<b>Example:</b>	<poi flag="ON" />
<b>Note:</b>	-

#### 8.19.1 flag

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

## 8.20 serving\_node\_action

<b>Description:</b>	
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.	
<b>Type:</b>	Element
<b>Format:</b>	Char string
<b>Defined values:</b>	-
<b>Default value:</b>	-
<b>Example:</b>	<serving_node_action passive_type="POSITION_IF_ALLOWED" active_type="POSITION" />
<b>Note:</b>	-

### 8.20.1 passive\_type

<b>Description:</b>											
The action to be used by the serving node for the LCS Notification Invoke procedure if target subscriber is not originator of location request.											
<b>Type:</b>	Attribute										
<b>Format:</b>	Char string										
<b>Defined values:</b>	<table border="1"> <tr> <td>POSITION_NOT_ALLOWED</td> <td>Positioning is not allowed.</td> </tr> <tr> <td>POSITION</td> <td>Positioning allowed without notifying the UE user</td> </tr> <tr> <td>NOTIFY_AND_POSITION</td> <td>Positioning allowed with notification to the UE user</td> </tr> <tr> <td>POSITION_IF_NOT_DISALLOWED</td> <td>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</td> </tr> <tr> <td>POSITION_IF_ALLOWED</td> <td>Positioning requires notification and verification by the UE user; positioning is allowed only if granted by the UE user.</td> </tr> </table>	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.
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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.										
<b>Default value:</b>											
<b>Example:</b>											
<b>Note:</b>	The "POSITION_NOT_ALLOWED" is needed when active_type is sent and a passive requesttype is not allowed.										

### 8.20.2 active\_type

<b>Description:</b>									
The action to be used by the serving node for the LCS Notification Invoke procedure if target subscriber is originator of location request.									
<b>Type:</b>	Attribute								
<b>Format:</b>	Char string								
<b>Defined values:</b>	<table border="1"> <tr> <td>POSITION_NOT_ALLOWED</td> <td>Positioning is not allowed.</td> </tr> <tr> <td>POSITION</td> <td>Positioning allowed without notifying the UE user</td> </tr> <tr> <td>NOTIFY_AND_POSITION</td> <td>Positioning allowed with notification to the UE user</td> </tr> <tr> <td>POSITION_IF_NOT_DISALLOWED</td> <td>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</td> </tr> </table>	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
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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.
<b>Default value:</b>	POSITION_NOT_ALLOWED	
<b>Example:</b>		
<b>Note:</b>	-	

## 8.21 pwd

<b>Description:</b>	
The password for the registered user performing a location request. In this context the user may either be a Client or an Location Server.	
<b>Type:</b>	Element
<b>Format:</b>	Char string
<b>Defined values:</b>	
<b>Default value:</b>	-
<b>Example:</b>	<pwd>the5pwd</pwd>
<b>Note:</b>	-

## 8.22 serviceid

<b>Description:</b>	
Specifies an id that is used by an entity to identify the service or application that is accessing the network.	
<b>Type:</b>	Element
<b>Format:</b>	Char string
<b>Defined values:</b>	
<b>Default value:</b>	-
<b>Example:</b>	<serviceid>0005</serviceid>
<b>Note:</b>	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

<b>Description:</b>	
This element indicates one of the service types as given in 3GPP 22.071 Rel 6.	
<b>Type:</b>	Element
<b>Format:</b>	Char string
<b>Defined values:</b>	
<b>Default value:</b>	-
<b>Example:</b>	<servicetype>0005</servicetype>
<b>Note:</b>	<p>The location server assigns the servicetype based on serviceid and client.</p> <p>Following service types are defined according to 3GPP 22.071:</p> <ul style="list-style-type: none"> <li>- Emergency services</li> <li>- Emergency alert services</li> <li>- Person tracking</li> <li>- Fleet management</li> <li>- Asset management</li> </ul>



	<ul style="list-style-type: none"> <li>- Traffic congestion reporting</li> <li>- Roadside assistance</li> <li>- Routing to nearest commercial enterprise</li> <li>- Traffic and public transportation information</li> <li>- City sightseeing</li> <li>- Localized advertising</li> <li>- Mobile yellow pages</li> <li>- Weather</li> <li>- Asset and service finding</li> <li>- Gaming</li> <li>- Find your friend</li> <li>- Dating</li> <li>- Chatting</li> <li>- Route finding</li> <li>- Where-am-I</li> </ul>
--	---

## 8.24 sgsnid

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

### 8.24.1 capability

<b>Description:</b>											
Defines the LCS capability of the serving node as specified in [23.271] Rel 6.											
<b>Type:</b>	Attribute										
<b>Format:</b>	Char string										
<b>Defined values:</b>	<table border="0"> <tr> <td style="padding-right: 10px;">1</td> <td>LCS capability set 1: R98 and R99 LCS (pre-Rel'4 LCS)</td> </tr> <tr> <td>2</td> <td>LCS capability set 2: Rel'4 LCS</td> </tr> <tr> <td>3</td> <td>LCS capability set 3: Rel'5 LCS</td> </tr> <tr> <td>4</td> <td>LCS capability set 4: Rel'6 or later LCS</td> </tr> <tr> <td>5</td> <td>LCS capability set 5: Rel'7 or later LCS</td> </tr> </table>	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
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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										
<b>Default value:</b>	-										
<b>Example:</b>	<pre>&lt;sgsnid capability="4"&gt; &lt;cc&gt;46&lt;/cc&gt; &lt;ndc&gt;70&lt;/ndc&gt; &lt;sgsnno&gt;1541154871&lt;/sgsnno &gt; &lt;/sgsnid &gt;</pre>										
<b>Note:</b>											

## 8.25 ta

<b>Description:</b>	
This Radio Access Network element that can arguably be used to offer enhanced positioning. (Timing Advance)	
<b>Type:</b>	Element
<b>Format:</b>	Char String
<b>Defined values:</b>	0-63
<b>Default value:</b>	-
<b>Example:</b>	<code>&lt;ta&gt;3&lt;/ta&gt;</code>
<b>Note:</b>	Further Information regarding this element can be found in the relevant GSM Specifications

## 8.26 requestmode

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

### 8.26.1 type

<b>Description:</b>	
Defines the type of the service that has been requested by the ASP	
<b>Type:</b>	Attribute
<b>Format:</b>	Char string
<b>Defined values:</b>	PASSIVE                      The service is one that is not directly initiated by the user. ACTIVE                         The service is one that the user is initiating personally.
<b>Default value:</b>	PASSIVE
<b>Example:</b>	<code>&lt;requestmode type="ACTIVE" /&gt;</code>
<b>Note:</b>	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

<b>Description:</b>	
Uniquely specifies a VLR within a network.	
<b>Type:</b>	Element
<b>Format:</b>	Char String
<b>Defined values:</b>	In GSM/WCDMA, defined values shall be according to ITU-T E.164.
<b>Default value:</b>	
<b>Example:</b>	<code>&lt;vlrid capability="4"&gt; &lt;cc&gt;46&lt;/cc&gt; &lt;ndc&gt;70&lt;/ndc&gt; &lt;vlrno&gt;1541154871&lt;/vlrno&gt; &lt;/vlrid&gt;</code>
<b>Note:</b>	

## 8.27.1 capability

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

## 8.28 vlrno

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

## 8.29 v\_ls

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

## 8.30 vmscid

<b>Description:</b>	
Uniquely specifies a VMSC within a network.	
<b>Type:</b>	Element
<b>Format:</b>	Char String
<b>Defined values:</b>	In GSM/WCDMA, defined values shall be according to ITU-T E.164.
<b>Default value:</b>	
<b>Example:</b>	<pre>&lt;vmscid capability="4"&gt;</pre>

	<pre>&lt;cc&gt;46&lt;/cc&gt; &lt;ndc&gt;70&lt;/ndc&gt; &lt;vmcno&gt;1541154871&lt;/vmcno&gt; &lt;/vmscid&gt;</pre>
<b>Note:</b>	

### 8.30.1 capability

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

### 8.31 vmcno

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

### 8.32 change\_area

<b>Description:</b>	
Specifies the event that initiated the positioning of the MS	
<b>Type:</b>	Element
<b>Format:</b>	
<b>Defined values:</b>	
<b>Default value:</b>	
<b>Example:</b>	<pre>&lt;change_area type="MS_ENTERING" loc_estimates="TRUE"&gt;   &lt;target_area&gt;     &lt;cc&gt;355&lt;/cc&gt;   &lt;/target_area&gt; &lt;/change_area&gt;</pre>
<b>Note:</b>	

### 8.32.1 type

<b>Description:</b>	
Specifies the trigger that initiated the positioning of the MS	
<b>Type:</b>	Attribute
<b>Format:</b>	Char string
<b>Defined values:</b>	MS_ENTERING
	MS_LEAVING
	MS_WITHIN_AREA
	MS_OUTSIDE_AREA
<b>Default value:</b>	
<b>Example:</b>	
<b>Note:</b>	

### 8.32.2 loc\_estimates

<b>Description:</b>	
Specifies whether location estimates is required or not	
<b>Type:</b>	Attribute
<b>Format:</b>	Char string
<b>Defined values:</b>	TRUE
	FALSE
<b>Default value:</b>	
<b>Example:</b>	
<b>Note:</b>	

### 8.33 target\_area

<b>Description:</b>	
Specify the target area in change_area event.	
<b>Type:</b>	Element
<b>Format:</b>	
<b>Defined values:</b>	
<b>Default value:</b>	
<b>Example:</b>	<pre>&lt;target_area&gt;   &lt;cc&gt;355&lt;/cc&gt; &lt;/target_area&gt;</pre>
<b>Note:</b>	

### 8.34 eme\_pos

<b>Description:</b>	
Specifies the position of the MS in an emergency location service response.	
<b>Type:</b>	Element
<b>Format:</b>	
<b>Defined values:</b>	
<b>Default value:</b>	
<b>Example:</b>	<pre>&lt;eme_pos&gt;   &lt;msid&gt;4711&lt;/msid&gt;   &lt;poserr&gt;     &lt;result resid="1"&gt;SYSTEM FAILURE&lt;/result&gt;   &lt;/poserr&gt; &lt;/eme_pos&gt;</pre>

	<pre>&lt;time utc_off="0200"&gt;20040617144558&lt;/time&gt; &lt;/poserr&gt; &lt;/eme_pos&gt;</pre>
<b>Note:</b>	

### 8.34.1 pos\_method

<b>Description:</b>																																											
Specifies the positioning method used to obtain the associated location estimate																																											
<b>Type:</b>	Attribute																																										
<b>Format:</b>	Char string																																										
<b>Defined values:</b>	<table border="1"> <tr><td>CELL</td><td>Cell coverage based positioning method</td></tr> <tr><td>OTDOA</td><td>Observed Time Difference of Arrival (OTDOA) positioning method</td></tr> <tr><td>GPS</td><td>Global Positioning System (GPS) based positioning method</td></tr> <tr><td>A-GPS</td><td>Assisted GPS based positioning method</td></tr> <tr><td>E-OTD</td><td>Enhanced Observed Time Difference (E-OTD) positioning method</td></tr> <tr><td>U-TDOA</td><td>Uplink Time Difference of Arrival (U-TDOA) positioning method</td></tr> <tr><td>AFLT</td><td>Advanced Forward Link Triangulation positioning method</td></tr> <tr><td>EFLT</td><td>Enhanced Forward Link Triangulation positioning method</td></tr> <tr><td>E-CID</td><td>Enhancement Cell ID positioning method</td></tr> <tr><td>BARO</td><td>Barometric Sensor positioning method</td></tr> <tr><td>BT</td><td>Bluetooth positioning method</td></tr> <tr><td>MBS</td><td>Metropolitan Beacon System positioning method</td></tr> <tr><td>WLAN</td><td>WLAN positioning method</td></tr> <tr><td>NR_E-CID</td><td>NR enhanced cell ID methods</td></tr> <tr><td>Multi-RTT</td><td>Multi-Round Trip Time Positioning method</td></tr> <tr><td>DL-AoD</td><td>Downlink Angle-of-Departure method</td></tr> <tr><td>DL-TDOA</td><td>Downlink Time Difference of Arrival method</td></tr> <tr><td>UL-TDOA</td><td>Uplink Time Difference of Arrival method</td></tr> <tr><td>UL-AoA</td><td>Uplink Angle of Arrival method</td></tr> <tr><td>UNKNOWN</td><td>Unknown positioning method</td></tr> <tr><td>OTHER</td><td>Any other positioning method</td></tr> </table>	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	BARO	Barometric Sensor positioning method	BT	Bluetooth positioning method	MBS	Metropolitan Beacon System positioning method	WLAN	WLAN positioning method	NR_E-CID	NR enhanced cell ID methods	Multi-RTT	Multi-Round Trip Time Positioning method	DL-AoD	Downlink Angle-of-Departure method	DL-TDOA	Downlink Time Difference of Arrival method	UL-TDOA	Uplink Time Difference of Arrival method	UL-AoA	Uplink Angle of Arrival method	UNKNOWN	Unknown positioning method	OTHER	Any other positioning method
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UNKNOWN	Unknown positioning method																																										
OTHER	Any other positioning method																																										
<b>Default value:</b>																																											
<b>Example:</b>	<pos pos_method="A-GPS"> ... </pos>																																										
<b>Note:</b>																																											

### 8.35 qop\_not\_met

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

<b>Description:</b>	
Accuracy of altitude in meters	
<b>Type:</b>	Element

<b>Format:</b>	Char String
<b>Defined values:</b>	[0-9]+
<b>Default value:</b>	
<b>Example:</b>	<alt_acc>200</alt_acc>
<b>Note:</b>	

### 8.36.1 qop\_class

<b>Description:</b>					
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.					
<b>Type:</b>	Attribute				
<b>Format:</b>	Char string				
<b>Defined values:</b>	<table border="0"> <tr> <td>ASSURED</td> <td>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.</td> </tr> <tr> <td>BEST_EFFORT</td> <td>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.</td> </tr> </table>	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.
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.				
<b>Default value:</b>					
<b>Example:</b>	<alt_acc qop_class="BEST_EFFORT">200</alt_acc>				
<b>Note:</b>	For details see 3GPP TS 23.271, v6.8.0, clause 6.5.1				

### 8.36.2 h\_ls

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

### 8.37 supl\_message

<b>Description:</b>	
Element which contains a SUPL message defined in [SUPL AD].	
<b>Type:</b>	Element
<b>Format:</b>	Base64
<b>Defined values:</b>	
<b>Default value:</b>	
<b>Example:</b>	<pre>&lt;supl_message&gt; DFGHDSGHDLGH0546YT045867T5LHGLSDFY76T047 &lt;/supl_message&gt;</pre>
<b>Note:</b>	



## 8.38 supl\_session\_id

<b>Description:</b>	
Element that identifies a RLP SUPL session between a H-SLP and a V-SLP. Only used in Standard SUPL Roaming Location Immediate Service	
<b>Type:</b>	Element
<b>Format:</b>	Base64
<b>Defined values:</b>	
<b>Default value:</b>	
<b>Example:</b>	<supl_session_id notif_mode="NORMAL">ABH98560</supl_session_id>
<b>Note:</b>	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

<b>Description:</b>	
Specifies the Notification mode used during the SUPL session.	
<b>Type:</b>	Attribute
<b>Format:</b>	Char string
<b>Defined values:</b>	BASED_ON_LOCATION NORMAL
<b>Default value:</b>	NORMAL
<b>Example:</b>	
<b>Note:</b>	

## 8.39 lcs\_ref

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

<b>Description:</b>	
This attribute indicates the role the receiving Location Server should assume when receiving a location request over RLP.	
<b>Type:</b>	Attribute

<b>Format:</b>	Char String
<b>Defined values:</b>	HLS Home Location Server VLS Visited Location Server
<b>Default value:</b>	N/A
<b>Example:</b>	<srlir ver="1.2.0" recv_role="HLS">...</srlir>
<b>Note:</b>	

## 8.41 supported\_shapes

<b>Description:</b>	
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.	
<b>Type:</b>	Element
<b>Format:</b>	Void
<b>Defined values:</b>	-
<b>Default value:</b>	-
<b>Example:</b>	<supported_shapes Point="YES" Polygon="YES" Altitude="YES" />
<b>Note:</b>	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

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

### 8.41.2 Linestring

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

### 8.41.3 Polygon

<b>Description:</b>	
Indicates if the shape Polygon is supported.	
<b>Type:</b>	Attribute
<b>Format:</b>	Char string

<b>Defined values:</b>	NO
	YES
<b>Default value:</b>	NO
<b>Example:</b>	<code>&lt;supported_shapes Polygon="YES"/&gt;</code>
<b>Note:</b>	

#### 8.41.4 Box

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

#### 8.41.5 CircularArea

<b>Description:</b>	
Indicates if the shape CircularArea is supported.	
<b>Type:</b>	Attribute
<b>Format:</b>	Char string
<b>Defined values:</b>	NO
	YES
<b>Default value:</b>	NO
<b>Example:</b>	<code>&lt;supported_shapes CircularArea="YES"/&gt;</code>
<b>Note:</b>	

#### 8.41.6 CircularArcArea

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

#### 8.41.7 EllipticalArea

<b>Description:</b>	
Indicates if the shape EllipticalArea is supported.	
<b>Type:</b>	Attribute
<b>Format:</b>	Char string
<b>Defined values:</b>	NO
	YES
<b>Default value:</b>	NO

<b>Example:</b>	<supported_shapes EllipticalArea="YES"/>
<b>Note:</b>	

### 8.41.8 MultiLineString

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

### 8.41.9 MultiPoint

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

### 8.41.10 MultiPolygon

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

### 8.41.11 LinearRing

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

## 8.41.12 Altitude

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

## 8.42 primaryscramblingcode

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

## 8.43 uarfcn\_ul

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

## 8.44 uarfcn\_dl

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

## 8.45 uarfcn\_nt

<b>Description:</b>	
Specifies the frequency for WCDMA, TDD.	
<b>Type:</b>	Element

<b>Format:</b>	Char String
<b>Defined values:</b>	0-16383
<b>Default value:</b>	-
<b>Example:</b>	<uarfcn_nt>2345</uarfcn_nt>
<b>Note:</b>	

## 8.46 nid

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

## 8.47 sid

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

## 8.48 base\_id

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

## 8.49 base\_lat

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

## 8.50 base\_long

<b>Description:</b>	
Specifies the Base Station Longitude for CDMA.	
<b>Type:</b>	Element
<b>Format:</b>	Char String
<b>Defined values:</b>	0-8388607
<b>Default value:</b>	-
<b>Example:</b>	<base_long>234567</base_long>
<b>Note:</b>	

## 8.51 ref\_pn

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

## 8.52 sgsnno

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

## 8.53 correlation\_id

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

## 8.54 esn

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

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

## 8.55 meid

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

## 8.56 mpcap

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

## 8.57 mscid

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

## 8.58 pc\_ssn

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



<b>Note:</b>	
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## 8.59 pos\_tech\_select

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

## 8.59.1 type

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

## 8.60 loc\_type

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

### 8.60.1 type

<b>Description:</b>													
Defines the type of location requested.													
<b>Type:</b>	Attribute												
<b>Format:</b>	Char string												
<b>Defined values:</b>	<table border="1"> <tr> <td>CURRENT</td> <td>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.</td> </tr> <tr> <td>LAST</td> <td>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.</td> </tr> <tr> <td>LAST_OR_CURRENT</td> <td>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.</td> </tr> <tr> <td>CURRENT_OR_LAST</td> <td>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.</td> </tr> <tr> <td>INITIAL</td> <td>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.</td> </tr> <tr> <td>NOTIF_VERIF_ONLY</td> <td>Only the Notification or Verification procedure and no positioning procedure shall be performed.</td> </tr> </table>	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.
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.												
<b>Default value:</b>	CURRENT												
<b>Example:</b>	<code>&lt;supported_shapes Point="YES"/&gt;</code>												
<b>Note:</b>													

## 8.60.2 per\_type

<b>Description:</b>	
Defines the type of periodic location requested	
<b>Type:</b>	Attribute
<b>Format:</b>	Char string
<b>Defined values:</b>	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.
<b>Default value:</b>	REALTIME
<b>Example:</b>	<loc_type per_type="BATCH" />
<b>Note:</b>	

## 8.61 lcs\_periodic\_info

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

### 8.61.1 short\_circuit

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

### 8.61.2 prioritized

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

<b>Example:</b>	
<b>Note:</b>	

## 8.62 reportingplmn

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

### 8.62.1 tech

<b>Description:</b>	
Defines the radio access technology in the reporting PLMN. See also [23.271]	
<b>Type:</b>	Attribute
<b>Format:</b>	Char string
<b>Defined values:</b>	GSM UMTS
<b>Default value:</b>	-
<b>Example:</b>	
<b>Note:</b>	

## 8.63 spcsetid

<b>Description:</b>	
This element defines the authentication key used by the SET for H/V-SPC authentication.	
<b>Type:</b>	Element
<b>Format:</b>	Char String, containing a 32 character hex value
<b>Defined values:</b>	00000000000000000000000000000000 to FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF
<b>Default value:</b>	
<b>Example:</b>	<spcsetid>FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF321</spcsetid>
<b>Note:</b>	

## 8.64 rand

<b>Description:</b>	
This element defines the random part of the transaction ID used for H/V-SPC authentication.	
<b>Type:</b>	Element
<b>Format:</b>	Char String, containing a 32 character hex value
<b>Defined values:</b>	00000000000000000000000000000000 to FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF
<b>Default value:</b>	
<b>Example:</b>	<rand>FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF321</rand>
<b>Note:</b>	

## 8.65 slpfqdn

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

## 8.66 spcset\_keylifetime

<b>Description:</b>	
This parameter defines the lifetime, in hours, of SPC_SET_Key	
<b>Type:</b>	Element
<b>Format:</b>	Char String
<b>Defined values:</b>	0 - 24
<b>Default value:</b>	
<b>Example:</b>	<spcset_keylifetime>5</spcset_keylifetime>
<b>Note:</b>	

## 8.67 batch\_cond

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

### 8.67.1 batch\_type

<b>Description:</b>							
Defines the type of batch condition.							
<b>Type:</b>	Attribute						
<b>Format:</b>	Char string						
<b>Defined values:</b>	<table border="0"> <tr> <td>MEASUREMENTS</td> <td>Location reports shall be sent when specified number of measurements have executed</td> </tr> <tr> <td>MINUTES</td> <td>Location reports shall be sent when specified number minutes has elapsed.</td> </tr> <tr> <td>ENDOFSERVICE</td> <td>Location report shall be sent when service terminates. Any value in element batch_cond is disregarded</td> </tr> </table>	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 service terminates. Any value in element batch_cond is disregarded
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 service terminates. Any value in element batch_cond is disregarded						
<b>Default value:</b>	CURRENT						
<b>Example:</b>	<batch_cond batch_type="MEASUREMENTS"> 500 </batch_cond>						
<b>Note:</b>							

## 8.68 lte\_ci

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

## 8.69 lte\_ta

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

## 8.70 measResultEUTRA

### 8.70.1 rsrpResult

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

### 8.70.2 rsrqResult

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

## 8.71 sector\_id

<b>Description:</b>	
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]	
<b>Type:</b>	Element
<b>Format:</b>	Char string
<b>Defined values:</b>	
<b>Default value:</b>	---
<b>Example:</b>	
<b>Note:</b>	

## 8.72 mme-name

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

## 8.73 minimumIntervalTime

<b>Description:</b>	
The minimum interval in seconds between reporting for triggered events.	
<b>Type:</b>	Element
<b>Format:</b>	Char string
<b>Defined values:</b>	Maximum number of seconds (must be $\geq 0$ )
<b>Default value:</b>	Implementation specific.
<b>Example:</b>	<minimumIntervalTime>30</minimumIntervalTime>
<b>Note:</b>	This element prevents flooding the LCS client with too many reports.

## 8.74 amf\_name

<b>Description:</b>	
This element defines the name of the target AMF.	
<b>Type:</b>	Element
<b>Format:</b>	Char string
<b>Defined values:</b>	FQDN
<b>Default value:</b>	
<b>Example:</b>	<amf_name>amf37.amf.5gc.mnc012.mcc345.3gppnetwork.org</amf_name>
<b>Note:</b>	

## 8.75 nr\_ci

<b>Description:</b>	
NR Cell Identity. Details related to this parameter is found in [3GPP NR] and [3GPP 38.413]	
<b>Type:</b>	Element
<b>Format:</b>	Char string
<b>Defined values:</b>	
<b>Default value:</b>	-
<b>Example:</b>	<nr_ci>546547</nr_ci>
<b>Note:</b>	-



## 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
Network Induced Location Request NI-LR	Location Information	Not applicable to RLP

Location procedures defined in 3GPP (23.271)		Services defined in 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 response:

```
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

Copyright Open Mobile Alliance Ltd., 2011
    All rights reserved

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    %
    mlp_id_qop_res_shape.dtd            SYSTEM "MLP_ID_QOP_RES_SHAPE_v3_4.DTD">
%mlp_id_qop_res_shape.dtd;

```

#### Example 1

```

<?xml version="1.0" ?>
<!DOCTYPE rlp_svc_init SYSTEM "RLP_v1_2.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

Copyright Open Mobile Alliance Ltd., 2011
    All rights reserved

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 | srlia | 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_v1_2.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
OMA-TS-RLP-V1_2-20150512-A	12 May 2015	Status changed to Approved by TP TP Ref # OMA-TP-2015-0081-INP_MLS_V1_3_ERP_for_final_Approval
OMA-TS-RLP-V1_2_1-20181211-A	11 Dec 2018	Status changed to Approved by LOC WG Ref LOC WG Doc# OMA-LOC-2018-0020- INP_MLS_Evolution_v1_3_1_ERP_for_Final_Approval_notification
OMA-TS-RLP-V1_2_2-20200804-A	04 Aug 2020	Status changed to Approved by LOC WG OMA-LOC-2020-0022-INP_MLS_Evolution_1.3.2_for_Final_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	6.2	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	6.3	O	
RLP-A-S-006	Target Identities, support of MSISDN	6.6	M	
RLP-A-S-007	Priority	6.5	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	7.3.2.1	M	RLP-C-S-003
RLP-B-S-004	Triggered Roaming Location Reporting Request	7.3.3.1	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	7.3.3.4	O	RLP-C-S-007 RLP-F-S-002
RLP-B-S-010	Triggered Roaming Location Reporting Query Request	7.3.3.7	O	
RLP-B-S-006	Emergency Roaming Location Immediate Request	7.3.4.1	O	RLP-C-S-008
RLP-B-S-007	Standard SUPL Roaming Location Immediate Request	7.3.5.1	O	RLP-C-S-009
RLP-B-S-008	Standard SUPL Roaming Position	7.3.5.3	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	11.2.2	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	7.3.2.2	M	
RLP-C-S-004	Standard Roaming Location Immediate Report	7.3.2.3	O	RLP-F-S-002
RLP-C-S-005	Triggered Roaming Location Reporting Answer	7.3.3.2	O	RLP-C-S-006 RLP-F-S-002
RLP-C-S-006	Triggered Roaming Location Report	7.3.3.3	O	RLP-C-S-005 RLP-F-S-002
RLP-C-S-007	Triggered Roaming Location Reporting Stop Answer	7.3.3.5	O	RLP-F-S-002
RLP-C-S-014	Triggered Roaming Location Reporting Pause Report	7.3.3.6	O	
RLP-C-S-015	Triggered Roaming Location Reporting Query Answer	7.3.3.8	O	
RLP-C-S-016	Triggered Roaming Location Query Report	7.3.3.9	O	
RLP-C-S-008	Standard Roaming Location Report	7.3.6.1	O	
RLP-C-S-009	Standard Roaming Location Report Answer	7.3.6.2	O	
RLP-C-S-010	Emergency Roaming Location Immediate Answer	7.3.4.2	O	
RLP-C-S-011	Standard SUPL Roaming Location Immediate Answer	7.3.5.2	O	
RLP-C-S-012	Standard SUPL Roaming Position	7.3.5.3	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	M	
RLP-E-S-002	codeword	7.3.2.1	O	
RLP-E-S-003	eqop	7.3.2.1	O	

Item	Function	Reference	Status	Requirement
RLP-E-S-004	geo_info	7.3.2.1	O	
RLP-E-S-005	loc_type	7.3.2.1	O	
RLP-E-S-006	prio	7.3.2.1	O	
RLP-E-S-007	pushaddr	7.3.2.1	O	
RLP-E-S-008	Extension parameters	7.3.2.1	O	

### B.1.6 Standard Roaming Location Immediate Answer

Item	Function	Reference	Status	Requirement
RLP-F-S-001	pos	7.3.2.2	M	
RLP-F-S-002	req_id	7.3.2.2	O	
RLP-F-S-003	result	7.3.2.2	M	
RLP-F-S-004	add_info	7.3.2.2	O	
RLP-F-S-005	Extension parameters	7.3.2.2	O	

### B.1.7 Standard Roaming Location Immediate Report

Item	Function	Reference	Status	Requirement
RLP-G-S-001	req_id	7.3.2.3	M	
RLP-G-S-002	pos	7.3.2.3	M	
RLP-G-S-003	Extension parameters	7.3.2.3	O	

### B.1.8 Triggered Roaming Location Reporting Request

Item	Function	Reference	Status	Requirement
RLP-H-S-001	msid	7.3.3.1	M	
RLP-H-S-002	codeword	7.3.3.1	O	
RLP-H-S-003	interval	7.3.3.1	O	
RLP-H-S-004	start_time	7.3.3.1	O	
RLP-H-S-005	stop_time	7.3.3.1	O	
RLP-H-S-006	duration	7.3.3.1	O	
RLP-H-S-007	tlrr_event	7.3.3.1	M	
RLP-H-S-008	qop	7.3.3.1	O	
RLP-H-S-009	geo info	7.3.3.1	O	
RLP-H-S-010	pushaddr	7.3.3.1	O	
RLP-H-S-011	loc type	7.3.3.1	O	
RLP-H-S-012	prio	7.3.3.1	O	
RLP-H-S-013	Extension parameters	7.3.3.1	O	
RLP-H-S-014	lcs_ref	7.3.3.1	O	

### B.1.9 Triggered Roaming Location Reporting Answer

Item	Function	Reference	Status	Requirement
RLP-I-S-001	req_id	7.3.3.2	M	
RLP-I-S-002	lcs_ref	7.3.3.2	O	
RLP-I-S-003	result	7.3.3.2	M	
RLP-I-S-004	add_info	7.3.3.2	O	

### B.1.10 Triggered Roaming Location Report

Item	Function	Reference	Status	Requirement
RLP-J-S-001	req_id	7.3.3.3	M	

Item	Function	Reference	Status	Requirement
RLP-J-S-002	lcs_ref	7.3.3.3	O	
RLP-J-S-003	trl_pos	7.3.3.3	M	
RLP-J-S-004	time_remaining	7.3.3.3	O	
RLP-J-S-005	Extension parameters	7.3.3.3	O	

### B.1.11 Triggered Roaming Location Reporting Stop Request

Item	Function	Reference	Status	Requirement
RLP-K-S-001	req_id	7.3.3.4	M	
RLP-K-S-002	Extension parameters	7.3.3.4	O	
RLP-K-S-003	lcs_ref	7.3.3.4	O	

### B.1.12 Triggered Roaming Location Reporting Stop Answer

Item	Function	Reference	Status	Requirement
RLP-L-S-001	req_id	7.3.3.5	M	
RLP-L-S-002	result	7.3.3.5	M	
RLP-L-S-003	add_info	7.3.3.5	O	
RLP-L-S-004	Extension parameters	7.3.3.5	O	

### B.1.13 Emergency Roaming Location Immediate Request

Item	Function	Reference	Status	Requirement
RLP-M-S-001	msid	7.3.4.1	M	
RLP-M-S-002	esrd	7.3.4.1	O	
RLP-M-S-003	esrk	7.3.4.1	O	
RLP-M-S-004	eqop	7.3.4.1	O	
RLP-M-S-005	geo_info	7.3.4.1	O	
RLP-M-S-006	loc_type	7.3.4.1	O	
RLP-M-S-007	Extension parameters	7.3.4.1	O	

### B.1.14 Emergency Roaming Location Immediate Answer

Item	Function	Reference	Status	Requirement
RLP-N-S-001	eme_pos	7.3.4.2	M	
RLP-N-S-002	result	7.3.4.2	M	
RLP-N-S-003	add_info	7.3.4.2	O	
RLP-N-S-004	Extension parameters	7.3.4.2	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	

Item	Function	Reference	Status	Requirement
RLP-U-S-005	neid	7.2.7	O	RLP-U-S-006 OR RLP-U-S-008
RLP-U-S-006	vmcsid	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	7.3.6.2	M	

Item	Function	Reference	Status	Requirement
RLP-Y-S-002	add_info	7.3.6.2	O	
RLP-Y-S-003	Extension parameters	7.3.6.2	O	

### B.1.26 Standard Roaming Location Report

Item	Function	Reference	Status	Requirement
RLP-Z-S-001	pos	7.3.6.1	M	
RLP-Z-S-002	Extension parameters	7.3.6.1	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	7.3.3.6	M	
RLP-CC-C-001	req_id	7.3.3.6	M	
RLP-CC-C-003	extension parameter	7.3.3.6	O	
RLP-CC-C-004	lcs_ref	7.3.3.6	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	

Item	Function	Reference	Status	Requirement
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	6.2	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	6.3	O	
RLP-A-C-006	Target Identities, support of MSISDN	6.6	M	
RLP-A-C-007	Priority	6.5	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	7.3.2.1	M	RLP-C-C-003
RLP-B-C-004	Triggered Roaming Location Reporting Request	7.3.3.1	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	7.3.3.4	O	RLP-C-C-007
RLP-B-C-011	Triggered Roaming Location Reporting Query Request	7.3.3.7		
RLP-B-C-006	Emergency Roaming Location Immediate Request	7.3.4.1	O	RLP-C-C-008
RLP-B-C-007	Standard SUPL Roaming Location Immediate Request	7.3.5.1	O	RLP-C-C-009



Item	Function	Reference	Status	Requirement
RLP-B-C-008	Standard SUPL Roaming Location Position	7.3.5.3	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	7.3.2.2	M	
RLP-C-C-004	Standard Roaming Location Immediate Report	7.3.2.3	O	RLP-F-C-002
RLP-C-C-005	Triggered Roaming Location Reporting Answer	7.3.3.2	O	RLP-C-C-006
RLP-C-C-006	Triggered Roaming Location Report	7.3.3.3	O	RLP-C-C-005
RLP-C-C-007	Triggered Roaming Location Reporting Stop Answer	7.3.3.5	O	
RLP-C-C-014	Triggered Roaming Location Reporting Pause Report	7.3.3.6	O	
RLP-C-C-015	Triggered Roaming Location Reporting Query Answer	7.3.3.8	O	
RLP-C-C-016	Triggered Roaming Location Query Report	7.3.3.9	O	
RLP-C-C-008	Standard Roaming Location Report	7.3.6.1	O	
RLP-C-C-009	Standard Roaming Location Report Answer	7.3.6.2	O	
RLP-C-C-010	Emergency Roaming Location Immediate Answer	7.3.4.2	O	
RLP-C-C-011	Standard SUPL Roaming Location Immediate Answer	7.3.5.2	O	
RLP-C-C-012	Standard SUPL Roaming Position	7.3.5.3	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	

Item	Function	Reference	Status	Requirement
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	M	
RLP-E-C-002	codeword	7.3.2.1	O	
RLP-E-C-003	eqop	7.3.2.1	O	
RLP-E-C-004	geo_info	7.3.2.1	O	
RLP-E-C-005	loc_type	7.3.2.1	O	
RLP-E-C-006	prio	7.3.2.1	O	
RLP-E-C-007	pushaddr	7.3.2.1	O	
RLP-E-C-008	Extension parameters	7.3.2.1	O	

### B.2.6 Standard Roaming Location Immediate Answer

Item	Function	Reference	Status	Requirement
RLP-F-C-001	pos	7.3.2.2	M	
RLP-F-C-002	req_id	7.3.2.2	O	
RLP-F-C-003	result	7.3.2.2	M	
RLP-F-C-004	add_info	7.3.2.2	O	
RLP-F-C-005	Extension parameters	7.3.2.2	O	

### B.2.7 Standard Roaming Location Immediate Report

Item	Function	Reference	Status	Requirement
RLP-G-C-001	req_id	7.3.2.3	O	
RLP-G-C-002	pos	7.3.2.3	M	
RLP-G-C-003	Extension parameters	7.3.2.3	O	

### B.2.8 Triggered Roaming Location Reporting Request

Item	Function	Reference	Status	Requirement
RLP-H-C-001	msid	7.3.3.1	M	
RLP-H-C-002	codeword	7.3.3.1	O	
RLP-H-C-003	interval	7.3.3.1	O	
RLP-H-C-004	start_time	7.3.3.1	O	
RLP-H-C-005	stop_time	7.3.3.1	O	
RLP-H-C-006	duration	7.3.3.1	O	
RLP-H-C-007	tlrr_event	7.3.3.1	M	
RLP-H-C-008	qop	7.3.3.1	O	
RLP-H-C-009	geo info	7.3.3.1	O	
RLP-H-C-010	pushaddr	7.3.3.1	O	
RLP-H-C-011	loc type	7.3.3.1	O	
RLP-H-C-012	prio	7.3.3.1	O	
RLP-H-C-013	Extension parameters	7.3.3.1	O	
RLP-H-C-014	lcs_ref	7.3.3.1	O	

### B.2.9 Triggered Roaming Location Reporting Answer

Item	Function	Reference	Status	Requirement
RLP-I-C-001	req_id	7.3.3.2	M	
RLP-I-C-002	lcs_ref	7.3.3.2	O	
RLP-I-C-003	result	7.3.3.2	M	
RLP-I-C-004	add_info	7.3.3.2	O	

### B.2.10 Triggered Roaming Location Report

Item	Function	Reference	Status	Requirement
RLP-J-C-001	req_id	7.3.3.3	M	
RLP-J-C-002	lcs_ref	7.3.3.3	O	
RLP-J-C-003	trl_pos	7.3.3.3	M	
RLP-J-C-004	time_remaining	7.3.3.3	O	
RLP-J-C-005	Extension parameters	7.3.3.3	O	

### B.2.11 Triggered Roaming Location Reporting Stop Request

Item	Function	Reference	Status	Requirement
RLP-K-C-001	req_id	7.3.3.4	M	
RLP-K-C-002	Extension parameters	7.3.3.4	O	
RLP-K-C-003	lcs_ref	7.3.3.4	O	

### B.2.12 Triggered Roaming Location Reporting Stop Answer

Item	Function	Reference	Status	Requirement
RLP-L-C-001	req_id	7.3.3.5	M	
RLP-L-C-002	result	7.3.3.5	M	
RLP-L-C-003	add_info	7.3.3.5	O	
RLP-L-C-004	Extension parameters	7.3.3.5	O	

### B.2.13 Emergency Roaming Location Immediate Request

Item	Function	Reference	Status	Requirement
RLP-M-C-001	msid	7.3.4.1	M	
RLP-M-C-002	esrd	7.3.4.1	O	
RLP-M-C-003	esrk	7.3.4.1	O	
RLP-M-C-004	eqop	7.3.4.1	O	
RLP-M-C-005	geo_info	7.3.4.1	O	
RLP-M-C-006	loc_type	7.3.4.1	O	
RLP-M-C-007	Extension parameters	7.3.4.1	O	

### B.2.14 Emergency Roaming Location Immediate Answer

Item	Function	Reference	Status	Requirement
RLP-N-C-001	eme_pos	7.3.4.2	M	
RLP-N-C-002	result	7.3.4.2	M	
RLP-N-C-003	add_info	7.3.4.2	O	
RLP-N-C-004	Extension parameters	7.3.4.2	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	

Item	Function	Reference	Status	Requirement
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
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] 5.2.2.6	O	
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	7.2.7	O	RLP-U-C-006 OR RLP-U-C-008
RLP-U-C-006	vmcsid	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	

Item	Function	Reference	Status	Requirement
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	7.3.6.2	M	
RLP-Y-C-002	add_info	7.3.6.2	O	
RLP-Y-C-003	Extension parameters	7.3.6.2	O	

### B.2.26 Standard Roaming Location Report

Item	Function	Reference	Status	Requirement
RLP-Z-C-001	pos	7.3.6.1	M	
RLP-Z-C-002	Extension parameters	7.3.6.1	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	7.3.3.6	M	
RLP-CC-S-002	msid	7.3.3.6	M	
RLP-CC-S-003	extension parameter	7.3.3.6	O	
RLP-CC-S-004	lcs_ref	7.3.3.6	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	