Enabler Release Definition for Mobile Location Service (MLS)

Candidate Version 1.0 – 24 Nov 2005

Open Mobile Alliance

OMA-ERELD-MLS-V1_0-20051124-C

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1. Scope

The scope of this document is limited to the Enabler Release Definition of MLS (Mobile Location Service) according to OMA Release process and the Enabler Release specification baseline listed in section 5.

2. References

2.1 Normative References

[IOPPROC] "OMA Interoperability Policy and Process", Version 1.1, Open Mobile Alliance™, OMA-IOP-Process-V1_1, URL:http://www.openmobilealliance.org/

[RFC2119] "Key words for use in RFCs to Indicate Requirement Levels", S. Bradner, March 1997, URL:http://www.ietf.org/rfc/rfc2119.txt

[23.271] "Functional stage 2 description of Location Services ", 3GPP TS 23.271 Release 6 http://www.3gpp.org/ftp/Specs/latest/Rel-6/23_series/

[MLS RD] "MLS Requirements Document", Open Mobile Alliance™, OMA-RD-MLS-V1_0 URL:http://www.openmobilealliance.org/

[MLS AD] "MLS Architecture Document", Open Mobile Alliance™, OMA-AD-MLS-V1_0 URL:http://www.openmobilealliance.org/

[MLP 3.1] "Mobile Location Protocol v3.1 Enabler Release", Open Mobile Alliance™, OMA-LIF-MLP-V3_1 URL: http://www.openmobilealliance.org/

[MLP 3.2] "Mobile Location Protocol v3.2", Open Mobile Alliance™, OMA-TS-MLP-V3_2 URL: http://www.openmobilealliance.org/

[MLP DTD] "MLP 3.2 DTDs", Open Mobile Alliance™, MLP_320_DTD URL: http://www.openmobilealliance.org/

[RLP 1.0] "Roaming Location Protocol v1.0", Open Mobile Alliance™, OMA-TS-MLP-V1_0 URL: http://www.openmobilealliance.org/

[RLP DTD] "RLP 1.0 DTDs", Open Mobile Alliance™, RLP_100_DTD URL: http://www.openmobilealliance.org/

[SUPL RD] "SUPL Requirements Document", Open Mobile Alliance™, OMA-RD-SUPL-V1_0 URL: http://www.openmobilealliance.org/

[SUPL AD] "SUPL Architecture Document", Open Mobile Alliance™, OMA-AD-SUPL-V1_0 URL:http://www.openmobilealliance.org/

2.2 Informative References

None

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.

The formal notation convention used in sections 8 and 9 to formally express the structure and internal dependencies between specifications in the Enabler Release specification baseline is detailed in [CREQ].

3.2 Definitions

Enabler Release	Collection of specifications that combined together form an enabler for a service area, e.g. a download enabler, a browsing enabler, a messaging enabler, a location enabler, etc. The specifications that are forming an enabler should combined fulfil a number of related market requirements.
Minimum Functionality Description	Description of the guaranteed features and functionality that will be enabled by implementing the minimum mandatory part of the Enabler Release.
SUPL Enabled Terminal (SET)	A device that is capable of communicating with a SUPL network. Examples of this could be a UE in UMTS, a MS in GSM or IS-95, or a PC over an IP-based transport.
SUPL Location Platform (SLP)	Entity responsible for SUPL Service Management and Position Determination. SLP contains the SLC and SPC Functions.

3.3 Abbreviations

ERDEF	Enabler Requirement Definition
ERELD	Enabler Release Definition
OMA	Open Mobile Alliance
MLP	Mobile Location Protocol
MLS	Mobile Location Service
SUPL	Secure User Plane Location

4. Introduction

This document outlines the Enabler Release Definition for MLS Enabler and the respective conformance requirements for clients and servers implementations claiming compliance to it as defined by Open Mobile Alliance across the specification baseline.

The OMA Mobile Location Service V1.0 (MLS V1.0) consists of a set of location specifications complying with 3GPP Release 6 LCS Specification [23.271]. MLS 1.0 is primarily intended for use in an 3GPP environment. Compliance to other environments is not an requirement but the specification has in several cases been extended to not unnecessary prevent use in other environments.The set of specifications in MLS V1.0 consist of MLP V3.2 [MLP 3.2] and RLP V1.0 [RLP 1.0].

MLP V3.2 describes the protocol between an MLS client and a Location Server. In the 3GPP context, MLP V3.2 was chosen to be an instantiation of the stage 3 specifications for the Le reference point [23.271].

RLP V1.0 describes the protocol between two Location Servers. In the 3GPP context, RLP V1.0 will be an instantiation of the stage 3 specifications for the Lr reference point [23.271]. Addtionally RLP V1.0 will be an instantiation of the reference point Lr as defined in [SUPL AD] between two SLPs with the purpose to transport information between the SLPs to enable positioning of roaming SUPL Enabled Terminals [SUPL RD]. Examples of such information are coarse position used when generating GPS assistance data or the actual GPS assistance data.

[23.271] also describes the Lid/Lpp reference points. This Enabler Release does not contain a protocol specification for these reference points. Later MLS releases however plan to do so.

Figure 1 shows an architectural diagram of MLS, its components and interfaces.

Figure 2 shows an architectural diagram of relevant components and interfaces in SUPL.

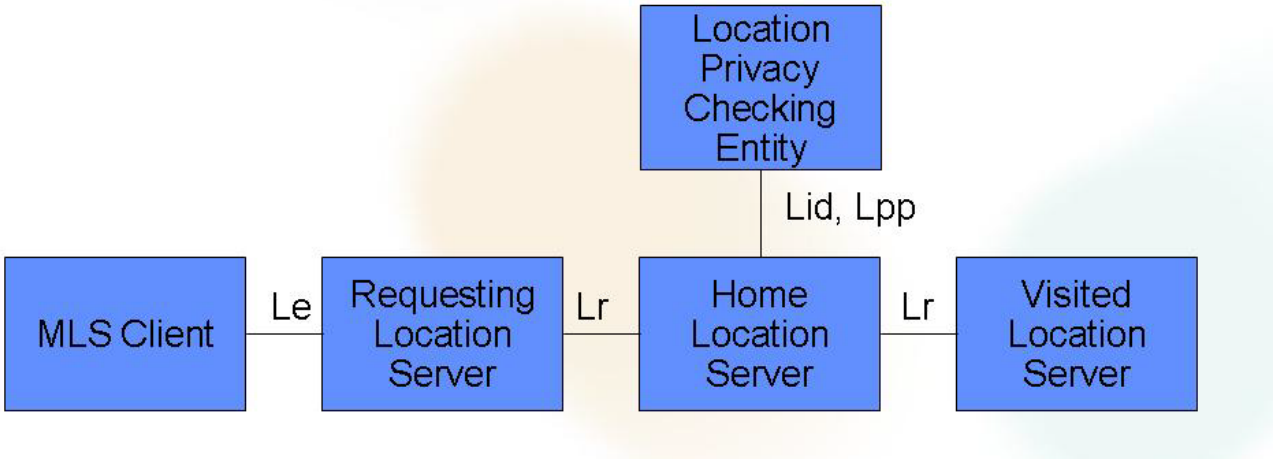


Figure 1: MLS Reference Points

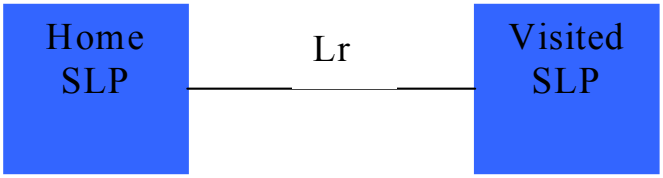


Figure 2: Relevant Reference Points in SUPL

5. Enabler Release Specification Baseline

This section is normative.

The MLS Enabler Release consists of the following specifications:

- MLS Requirements Document, see [MLS RD]
- MLS Architecture Document, see [MLS AD]
- MLP V3.2 Technical Specification, see [MLP 3.2]
- MLP V3.2 DTD's in machine processable form [MLP 3.2 DTD]
- RLP V 1.0 Technical Specification, see [RLP 1.0]
- RLP V1.0 DTD's in machine processable form [RLP DTD]

This release builds on an earlier Enabler Release [MLP 3.1] which consisted of MLP 3.1 specification and associated DTDs. The present MLS Enabler Release updates MLP with bug fixes and new features as well as it adds the first version of RLP.

The DTD's described in [MLP 3.2] and [RLP 1.0] are attached in machine processable form for the convenience of implementers of the specification.

6. Minimum Functionality Description for MLS 1.0

This section is informative.

An implementation of MLS 1.0 may realise on of the following entities:

1. MLS Client
2. Requesting Location Server, server side and or client side
3. Home Location Server, server side and or client side
4. Visited Location Server

An implementation of MLS 1.0 may realise any combination of 2,3, and 4.

A MLS Client must support the MLP Standard Location Immediate Service.

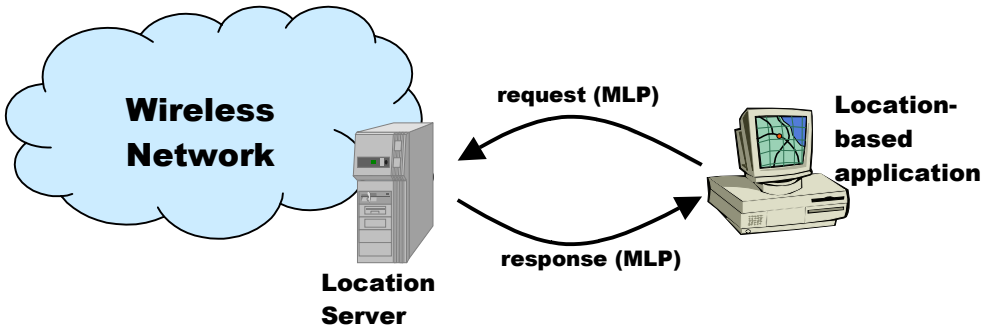
A Requesting Location Server, server side must support the MLP Standard Location Immediate Service.

A Home Location Server must support the RLP Standard Roaming Location Immediate Service.

A Visited Location Server must support the RLP Standard Roaming Location Immediate Service.

6.1 Mobile Location Protocol (MLP)

The Mobile Location Protocol (MLP) is an application-level protocol for querying the position of mobile stations independent of underlying network technology. The MLP serves as the interface between a Location Server and a location-based application.



Possible realizations of a Location Server are the GMLC, which is the Location Server defined in GSM and UMTS, and the MPC, which is defined in ANSI standards. Since the Location Server should be seen as a logical entity, other implementations are possible.

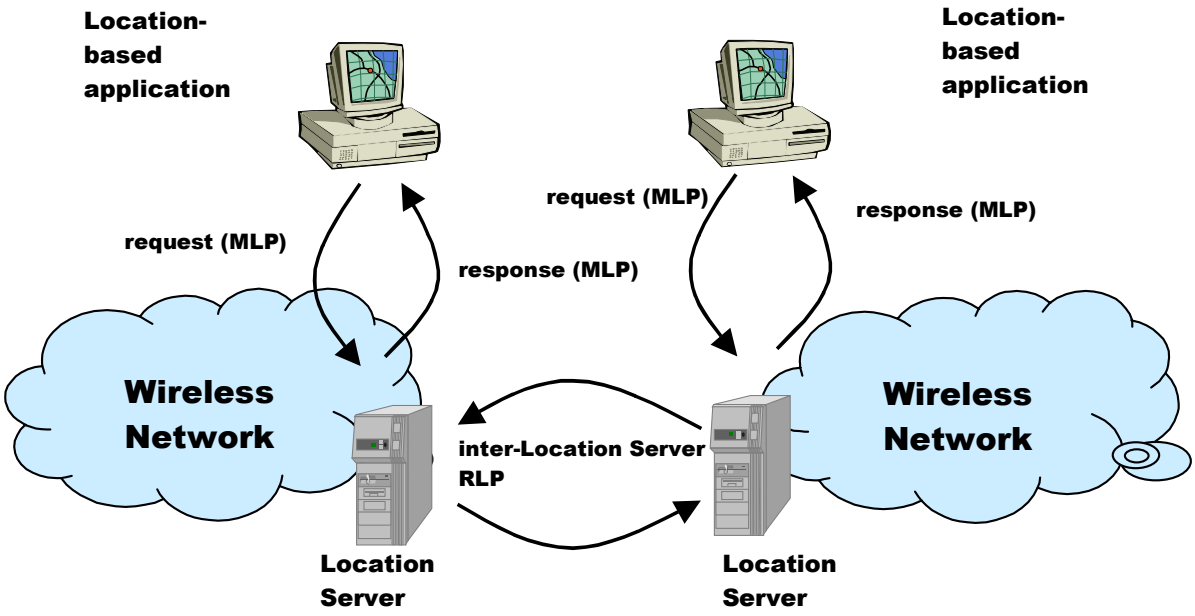
In the most scenarios an LCS client initiates the dialogue by sending a query to the Location Server and the server responds to the query.

MLP can be implemented using various transport mechanisms. Currently, the only mapping defined is a mapping to HTTP.

6.2 Roaming Location Protocol (RLP)

This protocol is also known as Inter-Location Server Mobile Location Protocol.

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 [MLP 3.2].



RLP can be implemented using various transport mechanisms. Currently, the only mapping defined is a mapping to HTTP.

7. Conformance Requirements Notation Details

This section is informative

The tables in following chapters use the following notation:

Item: Entry in this column MUST be a valid ScrItem according to [IOPPROC].

Feature/Application: Entry in this column SHOULD be a short descriptive label to the **Item** in question.

Status: Entry in this column MUST accurately reflect the architectural status of the **Item** in question.

- M means the **Item** is mandatory for the class
- O means the **Item** is optional for the class
- NA means the **Item** is not applicable for the class

Requirement: Expression in the column MUST be a valid TerminalExpression according to [IOPPROC] and it MUST accurately reflect the architectural requirement of the **Item** in question.

8. ERDEF for MLS 1.0 - Client Requirements

This section is normative.

Item	Feature / Application	Status	Requirement
OMA-ERDEF-MLS-C-001	MLS Enabler	M	OMA-ERDEF-MLS-C-002 OR OMA-ERDEF-MLS-C-003 OR OMA-ERDEF-MLS-C-004
OMA-ERDEF-MLS-C-002	MLS Client	O	MLP 3.2:MCF
OMA-ERDEF-MLS-C-003	Requesting Location Server	O	RLP 1.0: MCF AND NOT (RLP-D-C-003 AND RLP-V-C-010 AND RLP-V-C-012)
OMA-ERDEF-MLS-C-004	Home Location Server	O	RLP 1.0: MCF

Table 1 ERDEF for MLS Client-side Requirements

9. ERDEF for MLS 1.0 - Server Requirements

This section is normative.

Item	Feature / Application	Status	Requirement
OMA-ERDEF-MLS-S-001	MLS Enabler	M	OMA-ERDEF-MLS-S-002 OR OMA-ERDEF-MLS-S-003 OR OMA-ERDEF-MLS-S-004
OMA-ERDEF-MLS-S-002	Requesting Location Server	O	MLP 3.2:MSF
OMA-ERDEF-MLS-S-003	Home Location Server	O	RLP 1.0: MSF AND NOT (RLP-D-S-003 AND RLP-V-S-010 AND RLP-V-S-012)
OMA-ERDEF-MLS-S-004	Visited Location Server	O	RLP 1.0:MSF

Table 2 ERDEF for MLS Server-side Requirements

Appendix A. Change History (Informative)

A.1 Approved Version History

Reference	Date	Description
n/a	n/a	No prior version –or- No previous version within OMA

A.2 Draft/Candidate Version 1.0 History

Document Identifier	Date	Sections	Description
Draft Versions OMA-ERELD-MLS	02 Feb 2005	all	Initial draft
	02 May 2005	2 to 6	Resolution proposals to consistency revirew commnts in OMA-CONRR-MLS-V1_0-20050421-D included.
Candidate Version: OMA-ERELD-MLS-V1_0	07 Jun 2005	n/a	Status changed to Candidate by TP: OMA ref# OMA-TP-2005-0180-MLS-V1_0-for-Candidate-approval
Candidate Version: OMA-ERELD-MLS-V1_0	24 Nov 2005	n/a	Candidate version modified following TSs changes and sent to Athens TP for notification : - OMA-TS-RLP-V1_0-20051124-C • OMA-LOC-2005-0391R03-CR_RLP_1_0_RegisteredPorts • OMA-LOC-2005-0443R01-CR_RLP_correctionFigure2 • OMA-LOC-2005-0356-CR_RLP_1_0_adjusting_loc_type • OMA-LOC-2005-0490-CR-MLS 1.0 RLP 1.0 Correct Implementation of OMA-LOC-2005-0226R02 • OMA-LOC-2005-0476-CR-MLS 1.0 RLP 1.0 Triggered Terminology - OMA-TS-MLP-V3_2-20051124-C • OMA-LOC-2005-0330R01-MLP-SCR-ClientSLIA in B.1.2 • OMA-LOC-2005-0355-CR_MLP_3_2_adjusting_loc_type in 5.2.2.2 & 5.3.37.1 • OMA-LOC-2005-0366-CR_MLP_3_2_define_lcs_ref in 5.2.2.2 • OMA-LOC-2005-0464-CR_MLP3_2_dtd_version_numbers in numerous sections • OMA-LOC-2005-0475R01-CR-MLP-TS-Triggered_Terminology in 5.3.31 and 5.6.1 • - OMA-LOC-2005-0502R03-MLP in 5.1.1, 5.2.3.1.1, 5.2.3.2.2, 5.2.3.3.1 and 5.6.1 - OMA-TS-DTD_MLP_320-V1_0-20051124-C Modified following above TS changes - OMA-TS-DTD_RLP_100-V1_0-20051124-C Modified following above TS changes