Enabler Release Definition for Mobile Location Service (MLS)

Approved Version 1.1 – 19 Jul 2011

Open Mobile Alliance

OMA-ERELD-MLS-V1_1-20110719-A

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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 6.

2. References

2.1 Normative References

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

[IOPPROC] "OMA Interoperability Policy and Process", Version 1.10, Open Mobile Alliance™, OMA-ORG-IOP-Process-V1_10, 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/

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

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

[PCP 1.0] "Privacy Checking Protocol v1.0", Open Mobile Alliance™, OMA-TS-PCP-V1_0 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

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

[SUPL RD] "SUPL Requirements Document", Open Mobile Alliance™, OMA-RD-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 9 and 10 to formally express the structure and internal dependencies between specifications in the Enabler Release specification baseline is detailed in [IOPPROC].

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.
MCF	Defined in [IOPPROC] as “All mandatory client features of the specification SCR”
Minimum Functionality Description	Description of the guaranteed features and functionality that will be enabled by implementing the minimum mandatory part of the Enabler Release.
MSF	Defined in [IOPPROC] as “All mandatory server features of the specification SCR”
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
MLP	Mobile Location Protocol
MLS	Mobile Location Service
OMA	Open Mobile Alliance
PCP	Privacy Checking Protocol
RLP	Roaming Location Protocol
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 V1.1 (MLS V1.1) consists of a set of location specifications complying with 3GPP Release 6 LCS Specification [23.271]. MLS 1.1 is primarly 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 V1.1 consist of MLP V3.2 [MLP 3.2], RLP V1.0 [RLP 1.0] and PCP V1.0 [PCP 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.

PCP V1.0 describes the protocol between Home Location Server and Location Privacy Checking Entity. In the 3GPP context, RLP V1.0 will be an instantiation of the stage 3 specifications for the Lid and Lpp reference points [23.271].

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.

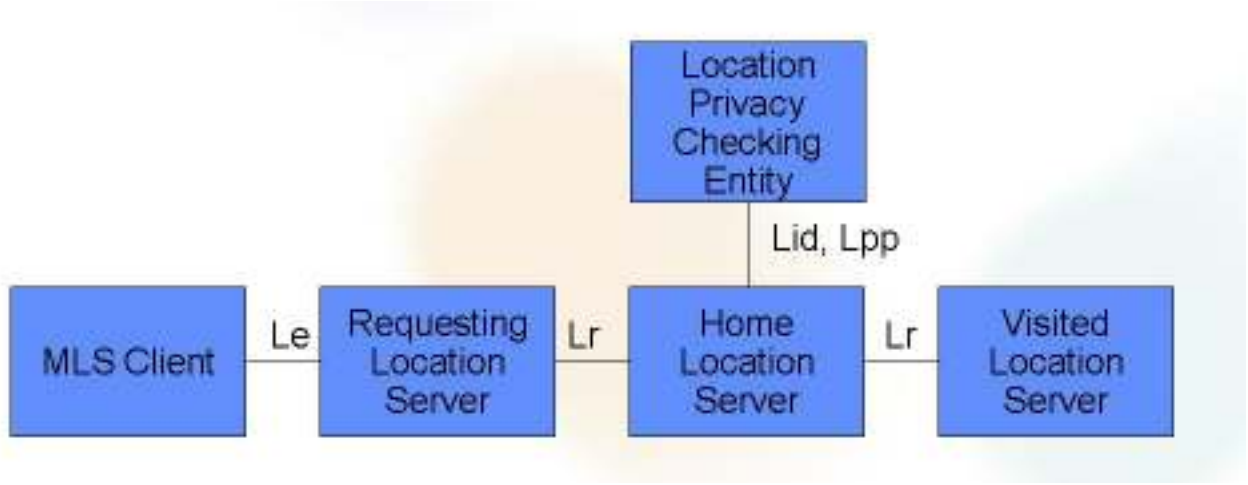


Figure 1: MLS Reference Points

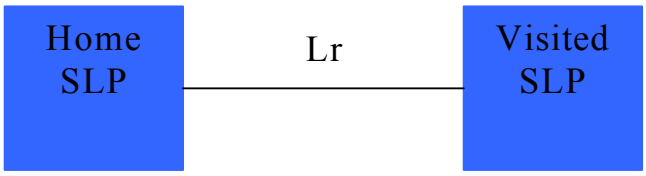


Figure 2: Relevant Reference Points in SUPL

5. Description of Differences from Previous Version

In MLS V1.1, the specification for the Privacy Checking Protocol [PCP 1.0] has been added.

6. Document Listing for MLS

This section is normative.

Doc Ref	Permanent Document Reference	Description
Requirement Document		
[MLS RD]	OMA-RD-MLS-V1_1-20110719-A	Requirement Document for MLS Enabler
Architecture Document		
[MLS AD]	OMA-AD-MLS-V1_1-20110719-A	Architecture Document for MLS Enabler
Technical Specifications		
[MLP 3.2]	OMA-TS-MLP-V3_2-20110719-A	Specification that defines the MLP protocol
[RLP 1.0]	OMA-TS-RLP-V1_0-20110719-A	Specification that defines the RLP protocol
[PCP 1.0]	OMA-TS-PCP-V1_0-20110719-A	Specification that defines the PCP protocol
Supporting Files		
[MLP DTD]	OMA-SUP-DTD_MLP_320-V1_0-20110719-A	DTD for the messages and included elements of the MLP protocol. Working file in DTD directory: file: MLP*.dtd path: http://www.openmobilealliance.org/tech/dtd/
[RLP DTD]	OMA-SUP-DTD_RLP_100-V1_0-20110719-A	DTD for the messages and included elements of the RLP protocols. Working file in DTD directory: file: RLP*.dtd path: http://www.openmobilealliance.org/tech/dtd/

Table 1: Listing of Documents in MLS Enabler

7. Minimum Functionality Description for MLS 1.1

This section is informative.

An implementation of MLS 1.1 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
5. Location Privacy Checking Entity.

An implementation of MLS 1.1 may realise any combination of 2, 3, and 4.

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

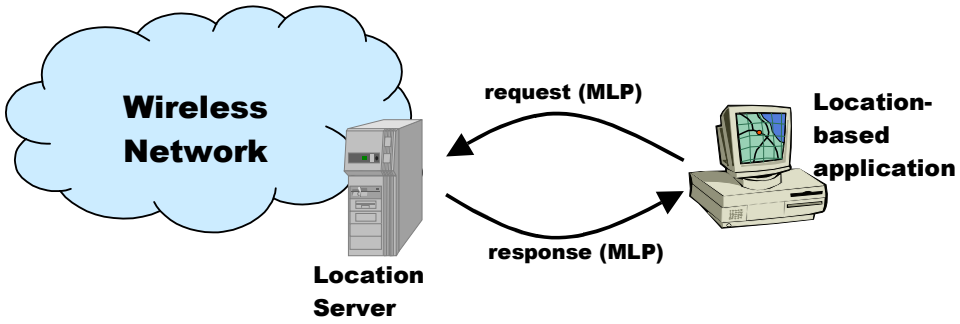
A Requesting Location Server, server side must support the MLP Standard Location Immediate Service.

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.

7.1 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.

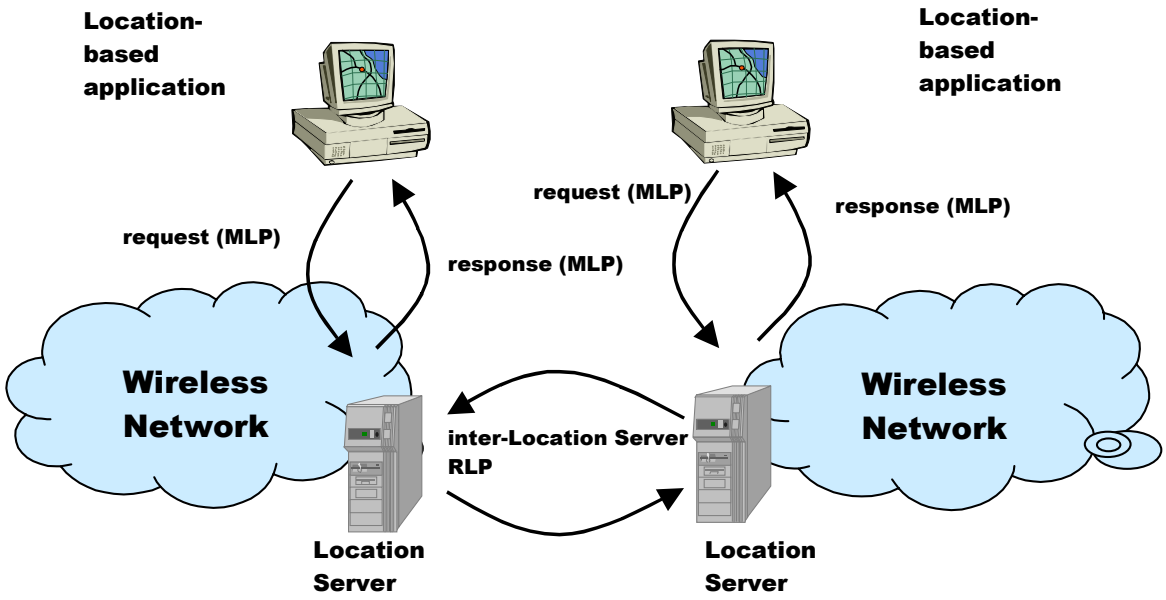
In the most scenarios an LCS client initiates the dialogue by sending a query to the Location Server and the server responds to the query.

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

7.2 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].

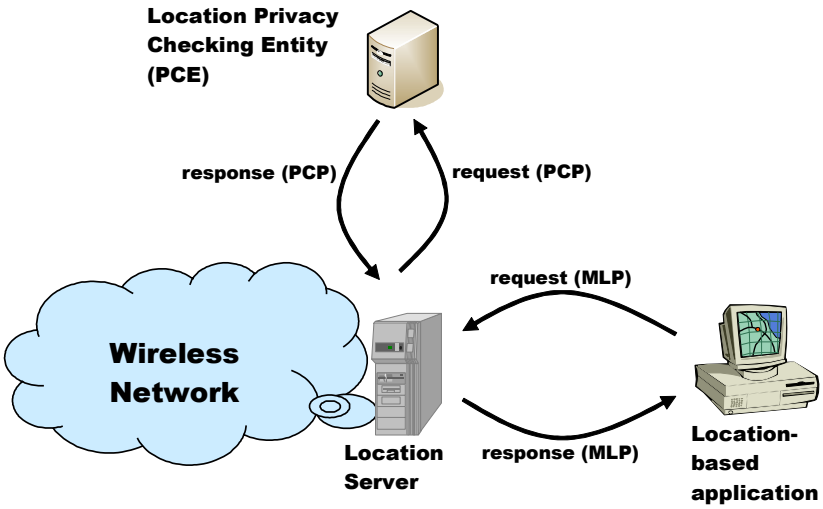


RLP can be implemented using various transport mechanisms. Currently, the only mapping defined is a mapping to HTTP.

7.3 Privacy Checking Protocol (PCP)

The Privacy Checking Protocol (PCP) is an application-level protocol for asserting mobile subscribers privacy settings from an external Privacy Checking Entity. PCP may be used as the protocol between a Location Server and an external privacy checking entity.

The Figure ´below show services for location privacy control between three entities, Location Server, Privacy Checking Entity, and MLS Clients. The PCE is equivalent to PPR (Privacy Profile Register) including PMD(Pseudonym Mediation Device) functionality. The Location Request/Response message between location server and MLS client refer to the MLP



8. 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.

9. ERDEF for MLS 1.1 - 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 OR OMA-ERDEF-MLS-C-005
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
OMA-ERDEF-MLS-C-005	Location Privacy Checking Entity	O	PCP 1.0: MCF

Imformative Note: The requirement for Item OMA-ERDEF-MLS-C-003 exempt three privacy related SCR Items in RLP from being mandatory as they are not applicable for the Requesting Location Server.

Table 2: ERDEF for MLS Client-side Requirements

10.ERDEF for MLS 1.1 - 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 OR OMA-ERDEF-MLS-S-005
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
OMA-ERDEF-MLS-S-005	Location Privacy Checking Entity	O	PCP 1.0:MSF

Informative Note: The requirement for Item OMA-ERDEF-MLS-S-003 exempt three privacy related SCR Items in RLP from being mandatory as they are not applicable for the Home Location Server.

Table 3: ERDEF for MLS Server-side Requirements

Appendix A. Change History (Informative)

A.1 Approved Version History

Reference	Date	Description
OMA-ERELD-MLS-V1_1	19 Jul 2011	No prior version –or- No previous version within OMA