Enabler Release Definition for Mobile Location Protocol (MLP)

Candidate Version 3.1 – 16 Mar 2004

Open Mobile Alliance
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1. Scope

The scope of this document is limited to the Enabler Release Definition of Mobile Location Protocol (MLP) V3.1 according to OMA Release process and the Enabler Release specification baseline listed in section 0.

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

[RFC2234] "Augmented BNF for Syntax Specifications: ABNF". D. Crocker, Ed., P. Overell. November 1997. URL: http://www.ietf.org/rfc/rfc2234.txt

[RFC2616] "Hypertext Transfer Protocol –HTTP/1.1"
June 1999. URL: http://www.ietf.org/rfc/rfc2616.txt

[RFC2246] "The TLS Protocol Version 1.0"
January 1999. URL: http://www.ietf.org/rfc/rfc2246.txt

[XML-1.0] "Extensible Markup Language (XML) 1.0" W3C Recommendation:
URL: http://www.w3.org/TR/2000/REC-xml-20001006

[IANA] Internet Assigned Numbers Authority (IANA)
URL: http://www.iana.org/

[ASCII] US-ASCII. Coded Character Set - 7-Bit American Standard Code for Information Interchange. Standard ANSI X3.4-1986, ANSI, 1986.

[MLP-SPEC] "Mobile Location Protocol"
URL: http://www.openmobilealliance.org

[MLP-DTD] DTD's of MLP
URL: http://www.openmobilealliance.org

2.2 Informative References

[02.71] GSM 02.71: "Digital cellular telecommunications system (Phase 2+); Location Services (LCS); Service description; Stage 1".

[22.071] 3GPP TS 22.071: "Location Services (LCS); Service description, Stage 1".

[03.71] GSM 03.71: "Digital cellular telecommunications system (Phase 2+); Location Services (LCS); Functional description; Stage 2".

[23.171] 3GPP TS 23.171: "Functional stage 2 description of location services in UMTS"

[23.271] 3GPP TS 23.271: "Functional stage 2 description of LCS"

[23.032] 3GPP TS 23.032: " Universal Geographical Area Description (GAD)"

[04.18] GSM 04.18: " Technical Specification Group GSM/EDGE Radio Access Network; Mobile radio interface layer 3 specification, Radio Resource Control Protocol"

[09.02] GSM 09.02: "Digital cellular telecommunications system (Phase 2+); Mobile Application Part (MAP) specification".

[29.002] 3GPP TS 29.002: "Digital cellular telecommunications system (Phase 2+); Mobile Application Part (MAP) specification".

[23.003] 3GPP TS 23.003: "Numbering, Addressing and Identification"

[OSA-MM] 3GPP TS 29.198-6
"Open Service Access (OSA) Application Programming Interface (API); Part 6: Mobility"

[Parlay]	Parlay API 2.1 Mobility Interfaces v1.1.1. URL: http://www.parlay.org
[E164]	ITU-T E.164: "The international public telecommunication numbering plan
[J-STD-036]	TR-45 J-STD-036 "Enhanced Wireless 9-1-1 Phase 2 Document"
[IS-41D]	IS-41D: " Cellular Radiotelecommunications Intersystem Operations", June 1997
[AST]	OpenGIS© Consortium Abstract Specification Topic 2: 01-063R2 URL: http://www.opengis.org/techno/abstract/02-102.pdf.
[CRS]	OpenGIS© Consortium Recommendation Paper 01-014r5: Recommended Definition Data for Coordinate Reference Systems and Coordinate Transformations URL: http://www.opengis.org/techno/discussions/01-014r5.pdf
[GML]	OpenGIS© Consortium Impementation Specification: Geography Markup Language V 2.0 URL: http://www.opengis.net/gml/01-029/GML2.html
[GEO]	OpenGIS© Consortium Abstract Specification Topic 1 Feature Geometry : 010101 URL: http://www.opengis.org/techno/abstract/01-101.pdf.

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].

3.1.1 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".

3.1.2 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

Enabler Release –a 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.

3.3 Abbreviations

ANSI	American National Standards Institute
DTD	Document Type Definition
ERDEF	Enabler Requirement Definition
ERELD	Enabler Release Definition
GMLC	Gateway Mobile Location Center
GMT	Greenwich Mean Time
HTTP	Hypertext Transfer Protocol
HTTPS	HTTP Secure
LCS	Location Services
MLC	Mobile Location Center
MLP	Mobile Location Protocol
MPC	Mobile Positioning Center
MS	Mobile Station
MSID	Mobile Station Identifier
OMA	Open Mobile Alliance
SSL	Secure Socket Layer
TLS	Transport Layer Security
URI	Uniform Resource Identifier
URL	Uniform Resource Locator
UTM	Universal Transverse Mercator
WAP	Wireless Application Protocol
WGS	World Geodetic System
XML	Extensible Markup Language

4. Introduction

This document outlines the Enabler Release Definition for Mobile Location Protocol V3.1.

The Mobile Location Protocol (MLP) is an application-level protocol for getting the position of mobile stations (mobile phones, wireless personal digital assistants, etc.) independent of underlying network technology. The MLP serves as the interface between a Location Server and a Location Services (LCS) Client. This specification defines the core set of operations that a Location Server should be able to perform.

5. Enabler Release Specification Baseline

This section is normative.

Specification baseline:	Doc Ref.
1. OMA-LIF-MLP-V3_1	[MLP-SPEC]
2. MLP DTD's in machine processable form	[MLP-DTD]

This release includes a specification from the predecessor organization Location Interoperability Forum (LIF) that the OMA Location Working Group now maintains.

Some updates and bug-fixes have been done to the legacy specification in order to secure the quality. Hence, this Enabler Release carries version number 3.1 whilst 3.0 was the last version of MLP released by LIF.

The DTD's described in [MLP-SPEC] are attached in machine processable form for the convenience of implementers of the specification.

Location Enabler handles information very personal and private in nature. Even if there are exceptions, for example in certain regions and/or use cases (emergency calls), there are a list of obligations applicable for all the parties involved. Hence, all the implementations of Location Enabler SHALL fulfil the requirements for protecting the privacy of the user of the located device as follows:

1. Location MUST NOT be released unintentionally to another party.
2. Any party (the mobile network operator's server, any other server, the terminal device) aiming at releasing the location MUST ensure that there is the target user's consent to release it to this exact destination before the delivery. This rule applies to all the parties separately in a possible deployment where the location is fetched and delivered through a chain of parties. In case of emergency call in a certain region, this consent MAY be considered implicit, hence overriding all the other privacy rules.
3. Ultimately, OMA Location Enabler enables two main sources for location, network-based Location Servers and Mobile Terminal Platforms. The same privacy requirements, principles and policies are valid in both of these cases.
4. There are two alternatives for the implementation of how a network-based Location Server SHALL protect the target user's privacy before delivery;
    - To request verification from the target user herself. Target user SHALL have a reasonably easy and practical means to deny the location delivery.
    - To request verification from a database where the target user's pre-defined settings are stored. The host/manufacturer of this database SHALL provide the target user with a reasonably easy and practical means to manage, maintain, update and request the status of her privacy settings at any time. The host of the database MUST ensure that no unauthorized party can have access or manipulate those settings. There are no restrictions, however, in which form and in which physical residence the database is implemented. In case consent to location delivery was not gotten based on the database, the verification MAY be requested from the target user, as described above.
5. There are two alternatives for the implementation of how the Mobile Terminal Platform SHALL protect the target user's privacy before delivery:
    - To request verification from the target user herself. Target user SHALL have a reasonably easy and practical means to deny the location delivery.
    - To request verification from a database where the target user's pre-defined settings are stored. The host/manufacturer of this database SHALL provide the target user with a reasonably easy and practical means to manage, maintain, update and request the status of her privacy settings at any time. The host of the database MUST ensure that no unauthorized party can have access or manipulate those settings. There are no restrictions, however, in which form and in which physical residence the database is implemented. In

case consent to location delivery was not gotten based on the database, the verification MAY be requested from the target user, as described above.

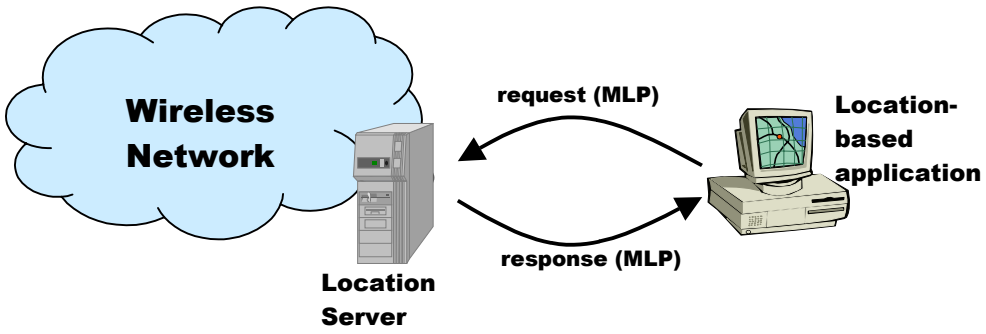
In deployments where the subscriber purchases the Location Service (position) from the Mobile Network Operator and uses the result for an independent 3rd party Application Service, both requirements 4 and 5 apply in sequence. It should be noted that the consumer SHALL have a right and means not to disclose the ultimate target where the location is delivered after purchase.

6. Minimum Functionality Description for MLP

This section is informative.

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.

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 MLP 3.1 - Client Requirements

This section is normative.
For the time being, this section is mostly blank. Ensuing versions of MLP will provide appropriate detail.

Table 1 ERDEF for MLP 3.1 Client-side Requirements

Item	Feature / Application	Status	Requirement
N/A	Terminal		

9. ERDEF for MLP 3.1 - Server Requirements

This section is normative.

For the time being, this section is mostly blank. Ensuing versions of MLP will provide appropriate detail.

Table 2 ERDEF for MLP 3.1 Server-side Requirements

Item	Feature / Application	Status	Requirement
OMA-ERDEF-MLP-V3_1-S-001	Location Server	M	[MLP-SPEC]

Appendix A. Change History (Informative)

A.1 Approved Version History

Reference	Date	Description
n/a	n/a	No previous version within OMA

A.2 Draft/Candidate Version 3.1 History

Document Identifier	Date	Sections	Description
Draft Versions OMA-ERELD-MLP-V3_1	25 Feb 2003		The initial version of this document./ Lennart Edberg, Ericsson AB
	20 Mar 2003	Section 5	Clarified that legacys specs from LIF and WAP-Forum have equal status in this ER
	26 May 2003	Name and section 5	Changed nameof ER and added explanation in Section 5
	27 May 2003	Section 3.3, & 6.1	Abbreviations in one table and sorted. Editorial correction in 6.1
	28 May 2003	Section 9	Corrections to Section 9 and Document History & Change history
	5 Jun 2003	n/a	With Internal Doc No: OMA-LOC-2003-111-ERELD Location-Protocol V1_0-20030528-D Until ready for release.
	6 Jun 2003	Section 9	Table of contents updated + changed Section 9 Heading (Terminal-> Client)
	10 Jun 2003	Section 1,4,5,6,8,9	Document changed to only handle MLP 3.1 Section 2: Normative and Informative references not updated/changed
	10 Jun 2003	Section 5	Text added in Section 5 from approved CR: OMA-LOC-0099-Privacy_Statement_in_Location_ERELD-20030528
	18 Nov 2003		Revised for Consistency Review
	12 Feb 2004		Revised after comments from Consistency Review
Candidate Version OMA-ERELD-MLP-V3_1	16 Mar 2004	n/a	Status changed to Candidate by TP TP ref # OMA-TP-2004-0086-MLP-V3_1-for-Candidate-Approval