Enabler Release Definition for Secure User Plane Location (SUPL)

Candidate Version 2.1 – 11 Jul 2013

Open Mobile Alliance

OMA-ERELD-SUPL-V2_1-20130711-C

© 2013 Open Mobile Alliance Ltd. All Rights Reserved.
Used with the permission of the Open Mobile Alliance Ltd. under the terms as stated in this document.

Use of this document is subject to all of the terms and conditions of the Use Agreement located at http://www.openmobilealliance.org/UseAgreement.html.

Unless this document is clearly designated as an approved specification, this document is a work in process, is not an approved Open Mobile Alliance™ specification, and is subject to revision or removal without notice.

You may use this document or any part of the document for internal or educational purposes only, provided you do not modify, edit or take out of context the information in this document in any manner. Information contained in this document may be used, at your sole risk, for any purposes. You may not use this document in any other manner without the prior written permission of the Open Mobile Alliance. The Open Mobile Alliance authorizes you to copy this document, provided that you retain all copyright and other proprietary notices contained in the original materials on any copies of the materials and that you comply strictly with these terms. This copyright permission does not constitute an endorsement of the products or services. The Open Mobile Alliance assumes no responsibility for errors or omissions in this document.

Each Open Mobile Alliance member has agreed to use reasonable endeavors to inform the Open Mobile Alliance in a timely manner of Essential IPR as it becomes aware that the Essential IPR is related to the prepared or published specification. However, the members do not have an obligation to conduct IPR searches. The declared Essential IPR is publicly available to members and non-members of the Open Mobile Alliance and may be found on the "OMA IPR Declarations" list at http://www.openmobilealliance.org/ipr.html. The Open Mobile Alliance has not conducted an independent IPR review of this document and the information contained herein, and makes no representations or warranties regarding third party IPR, including without limitation patents, copyrights or trade secret rights. This document may contain inventions for which you must obtain licenses from third parties before making, using or selling the inventions. Defined terms above are set forth in the schedule to the Open Mobile Alliance Application Form.

NO REPRESENTATIONS OR WARRANTIES (WHETHER EXPRESS OR IMPLIED) ARE MADE BY THE OPEN MOBILE ALLIANCE OR ANY OPEN MOBILE ALLIANCE MEMBER OR ITS AFFILIATES REGARDING ANY OF THE IPR'S REPRESENTED ON THE "OMA IPR DECLARATIONS" LIST, INCLUDING, BUT NOT LIMITED TO THE ACCURACY, COMPLETENESS, VALIDITY OR RELEVANCE OF THE INFORMATION OR WHETHER OR NOT SUCH RIGHTS ARE ESSENTIAL OR NON-ESSENTIAL.

THE OPEN MOBILE ALLIANCE IS NOT LIABLE FOR AND HEREBY DISCLAIMS ANY DIRECT, INDIRECT, PUNITIVE, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES ARISING OUT OF OR IN CONNECTION WITH THE USE OF DOCUMENTS AND THE INFORMATION CONTAINED IN THE DOCUMENTS.

© 2013 Open Mobile Alliance Ltd. All Rights Reserved.
Used with the permission of the Open Mobile Alliance Ltd. under the terms set forth above.

Contents

1. SCOPE 4
2. REFERENCES 5
2.1 NORMATIVE REFERENCES 5
2.2 INFORMATIVE REFERENCES 5
3. TERMINOLOGY AND CONVENTIONS 6
3.1 CONVENTIONS 6
3.2 DEFINITIONS 6
3.3 ABBREVIATIONS 6
4. RELEASE VERSION OVERVIEW 7
4.1 VERSION 1.0 FUNCTIONALITY 7
4.2 VERSION 2.0 FUNCTIONALITY 7
4.2.1 UserPlane Location Protocol (ULP) 7
4.2.2 Internal Location Protocol (ILP) 8
4.2.3 Roaming Location Protocol (RLP) 8
5. DOCUMENT LISTING FOR SUPL 2.1 9
6. OMNA CONSIDERATIONS 10
7. CONFORMANCE REQUIREMENTS NOTATION DETAILS 11
8. ERDEF FOR SUPL 2.1 – CLIENT REQUIREMENTS 12
9. ERDEF FOR SUPL 2.1 – SERVER REQUIREMENTS 13
APPENDIX A. CHANGE HISTORY (INFORMATIVE) 14
A.1 APPROVED VERSION HISTORY 14
A.2 DRAFT/CANDIDATE VERSION 2.1 HISTORY 14

Figures

Figure 1: UserPlane Location Protocol 7

Tables

Table 1: Listing of Documents in SUPL 2.1 Enabler 9
Table 2: ERDEF for SUPL 2.1 Client-side Requirements 12
Table 3: ERDEF for SUPL 2.1 Server-side Requirements 13

© 2013 Open Mobile Alliance Ltd. All Rights Reserved.
Used with the permission of the Open Mobile Alliance Ltd. under the terms as stated in this document.

1. Scope

The scope of this document is limited to the Enabler Release Definition of Secure User Plane Location (SUPL) 2.1 according to OMA Release process and the Enabler Release specification baseline listed in section 5.

© 2013 Open Mobile Alliance Ltd. All Rights Reserved.
Used with the permission of the Open Mobile Alliance Ltd. under the terms as stated in this document.

2. References

2.1 Normative References

[23.271] 3GPP TS 23.271 Release 6 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/

[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", Version 1.0, Open Mobile Alliance™, OMA-TS-RLP-V1_0
URL: http://www.openmobilealliance.org/

[SUPL 1.0 AD] "SUPL Architecture Document", Version 1.0, Open Mobile Alliance™, OMA-AD-SUPL-V1_0
URL:http://www.openmobilealliance.org/

[SUPL1.0 RD] "SUPL Requirements Document", Version 1.0, Open Mobile Alliance™, OMA-RD-SUPL-V1_0
URL:http://www.openmobilealliance.org/

[SUPL 2.0 AD] "SUPL Architecture Document", Version 1.0, Open Mobile Alliance™, OMA-AD-SUPL-V2_0
URL:http://www.openmobilealliance.org/

[SUPL 2.0 RD] "SUPL Requirements Document", Version 1.0, Open Mobile Alliance™, OMA-RD-SUPL-V2_0
URL:http://www.openmobilealliance.org/

[SUPL AD] "SUPL Architecture Document", Version 2.1, Open Mobile Alliance™, OMA-AD-SUPL-V2_1
URL:http://www.openmobilealliance.org/

[SUPL MO] "OMA Management Object for SUPL", Version 2.1, Open Mobile Alliance™, OMA-TS-SUPL-MO-V2_1
URL: http://www.openmobilealliance.org/

[SUPL RD] "SUPL Requirements Document", Version 2.1, Open Mobile Alliance™, OMA-RD-SUPL-V2_1
URL:http://www.openmobilealliance.org/

[SUPL TS-ULP] "UserPlane Location Protocol ", Version 2.1, Open Mobile Alliance™, OMA-TS-ULP-V2_1
URL: http://www.openmobilealliance.org/

[SUPL TS-ILP] "UserPlane Location Protocol", Version 2.0, Open Mobile Alliance™, OMA-TS-ILP-V2_1
URL: http://www.openmobilealliance.org/

[DMDDFDTD] "OMA DM Device Description Framework DTD, Version 1.2". Open Mobile Alliance™. OMA-SUP-dtd_dm_ddf-v1_2. URL:http://www.openmobilealliance.org

[DMAccDDF] "OMA SUPL Managed Object DDF, Version 2.1". Open Mobile Alliance™. OMA-SUP-MO_SUPL-V2_1. URL:http://www.openmobilealliance.org

2.2 Informative References

[OMADICT] "Dictionary for OMA Specifications", Version x.y, Open Mobile Alliance™, OMA-ORG-Dictionary-Vx_y, URL:http://www.openmobilealliance.org/

© 2013 Open Mobile Alliance Ltd. All Rights Reserved.
Used with the permission of the Open Mobile Alliance Ltd. under the terms as stated in this document.

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”, "Release Version Overview" and “Conformance Requirements Notation Details”, 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 [SCRRULES].

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.

3.3 Abbreviations

ERDEF	Enabler Requirement Definition
ERELD	Enabler Release Definition
OMA	Open Mobile Alliance
OMNA	Open Mobile Naming Authority

© 2013 Open Mobile Alliance Ltd. All Rights Reserved.
Used with the permission of the Open Mobile Alliance Ltd. under the terms as stated in this document.

4. Release Version Overview

This document outlines the Enabler Release Definition for the SUPL Enabler and the respective conformance requirements for clients and servers.

SUPL V2.1 describes the protocol between a SUPL Enabled Terminal (SET) and SUPL Location Platform (SLP[1]) and the protocol between SLC and SPC.

The purpose of the SUPL Enabler Release is to back port the SUPL 3.0 Discovered SLP (D-SLP) feature to the SUPL 2.0 baseline creating V2.1. This feature is an important feature for the SUPL community. This enabler allows the feature to be available prior to general availability of SUPL 3.0 handsets.

4.1 Version 1.0 Functionality

SUPL 1.0 supports immediate fix positioning procedures for GSM, WCDMA/TD-SCDMA and CDMA networks. It supports terminal and network based positioning methods defined for GSM, WCDMA/TD-SCDMA and CDMA such as A-GPS, EOTD and Enhanced Cell Id.

4.2 Version 2.0 Functionality

SUPL 2.0 adds a number of features to SUPL V1.0. The major functional enhancements are:

- Triggered positioning procedures, both periodic and area event.
- Emergency positioning procedures.
- Support of A-GANSS positioning method and improvements to enhanced cell id positioning method
- Support of I-WLAN, WiMAX, I-WiMAX, HRPD and LTE networks.
- Positioning procedures for delivery to third party and retrieval of location of another SET.

In addition the protocol between SLC and SPC, i.e. the ILP, is defined.

4.2.1 UserPlane Location Protocol (ULP)

The UserPlane Location Protocol (ULP) is a protocol-level instantiation of the Lup reference point. The protocol is used between the SLP (SUPL Location Platform) and a SET (SUPL Enabled Terminal). For more details about SUPL Requirements refer to [SUPL RD]. For more details about SUPL architecture and call-flows, refer to [SUPL AD]

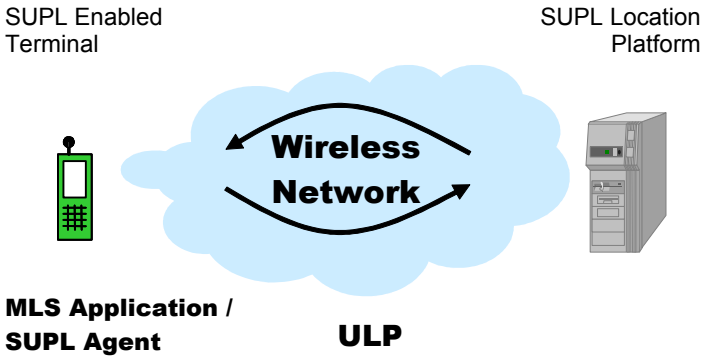

Figure 1: UserPlane Location Protocol

[1] The SLP consists of SLC and SPC.

© 2013 Open Mobile Alliance Ltd. All Rights Reserved.
Used with the permission of the Open Mobile Alliance Ltd. under the terms as stated in this document.

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

Depending which SUPL Agent initiates the dialogue, a SUPL INIT message is sent to the SET (network initiated), or a SUPL START message, a SUPL TRIGGERED START message, or a SUPL SET INIT message is sent to the SLP (SET initiated).

ULP can be implemented using various transport mechanisms. Currently, the only mapping defined is a mapping to TCP, with the following exception: the SUPL INIT message is transported over WAP Push or MT SMS.

4.2.2 Internal Location Protocol (ILP)

The function of the Llp reference point is logically separated into the Positioning Control Function and the Positioning Data Function.

4.2.3 Roaming Location Protocol (RLP)

RLP is an element of the OMA MLS Enabler, and facilitates the SUPL roaming scenarios. RLP is also known as Inter-Location Server Mobile Location Protocol.

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]. However, those parts of RLP which are used by SUPL are specified in a way that they can be used by wireless networks other than 3GPP.

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

© 2013 Open Mobile Alliance Ltd. All Rights Reserved.
Used with the permission of the Open Mobile Alliance Ltd. under the terms as stated in this document.

5. Document Listing for SUPL 2.1

This section is normative.

Doc Ref	Permanent Document Reference	Description
Requirement Document		
[SUPL RD]	OMA-RD-SUPL-V2_1-20120529-C	Requirement Document for SUPL 2.1 Enabler
Architecture Document		
[SUPL AD]	OMA-AD-SUPL-V2_1-20120529-C	Architecture Document for SUPL 2.1 Enabler
Technical Specifications		
[SUPL TS-ULP]	OMA-TS-ULP-V2_1-20130711-C	Specification that defines the SUPL 2.1 UserPlane Location Protocol.
[SUPL TS-ILP]	OMA-TS-ILP-V2_1-20130115-C	Specification that defines the SUPL 2.1 SPC-SLC Protocol.
[SUPL MO]	OMA-TS-SUPL_MO-V2_1-20130115-C	Specification that defines the SUPL 2.1 MO.
Supporting Files		
[DMAccDDF]	OMA-SUP-MO_oma_supl-V2_0-20120417-A	Device Description of the Management Object for SUPL 2.1. Working file in Management Object directory: file: oma_supl-v2_1.ddf path: http://www.openmobilealliance.org/tech/omna/dm-mo

Table 1: Listing of Documents in SUPL 2.1 Enabler

© 2013 Open Mobile Alliance Ltd. All Rights Reserved.
Used with the permission of the Open Mobile Alliance Ltd. under the terms as stated in this document.

6. OMNA Considerations

This file [DMAccDDF] contains the Management Object for the SUPL 2.1 enabler registered as oma_supl-v2_1 with OMNA.

© 2013 Open Mobile Alliance Ltd. All Rights Reserved.
Used with the permission of the Open Mobile Alliance Ltd. under the terms as stated in this document.

7. Conformance Requirements Notation Details

The tables in following chapters use the following notation:

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

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

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

© 2013 Open Mobile Alliance Ltd. All Rights Reserved.
Used with the permission of the Open Mobile Alliance Ltd. under the terms as stated in this document.

8. ERDEF for SUPL 2.1 – Client Requirements

This section is normative.

Item	Feature / Application	Status	Requirement
OMA-ERDEF-SUPL-C-001	Support of SET Procedures	M	OMA-ERDEF-SUPL-C-002 OR OMA-ERDEF-SUPL-C-003 OR OMA-ERDEF-SUPL-C-007
Network and security types			
OMA-ERDEF-SUPL-C-002	SET supporting GBA authentication	O	ULP-PRO-C-004-O
OMA-ERDEF-SUPL-C-003	SET supporting ACA model	M	ULP-PRO-C-005-M
OMA-ERDEF-SUPL-C-007	SET supporting WiMAX mode, SEK authentication	O	ULP-PRO-C-006-O

Table 2: ERDEF for SUPL 2.1 Client-side Requirements

© 2013 Open Mobile Alliance Ltd. All Rights Reserved.
Used with the permission of the Open Mobile Alliance Ltd. under the terms as stated in this document.

9. ERDEF for SUPL 2.1 – Server Requirements

This section is normative.

Item	Feature / Application	Status	Requirement
OMA-ERDEF-SUPL-S-001	Support of ULP Procedures	M	OMA-ERDEF-SUPL-S-004 OR OMA-ERDEF-SUPL-S-005 OR OMA-ERDEF-SUPL-S-006 OR OMA-ERDEF-SUPL-S-007 OR OMA-ERDEF-SUPL-S-008 OR OMA-ERDEF-SUPL-S-009 OR OMA-ERDEF-SUPL-S-013
OMA-ERDEF-SUPL-S-002	Support of RLP, H-SLP part	O	RLP 1.1: MCF
OMA-ERDEF-SUPL-S-003	Support of RLP, V-SLP part	O	RLP 1.1: MSF
OMA-ERDEF-SUPL-S-004	Support of ILP, SLC part	O	ILP 1.0 MCF
OMA-ERDEF-SUPL-S-005	Support of ILP, SPC part	O	ILP 1.0 MSF
Network and security types			
OMA-ERDEF-SUPL-S-006	SLP supporting GBA authentication	O	ULP-PRO-S-004-O
OMA-ERDEF-SUPL-S-007	SLP supporting ACA authentication model	M	ULP-PRO-S-005-M
OMA-ERDEF-SUPL-S-008	SLP supporting SSK authentication model	O	ULP-PRO-S-006-O
OMA-ERDEF-SUPL-S-009	SLP supporting SLC only authentication model	O	ULP-PRO-S-007-O
OMA-ERDEF-SUPL-S-013	SLP supporting WiMAX mode, SEK authentication model	O	ULP-PRO-S-008-O

Table 3: ERDEF for SUPL 2.1 Server-side Requirements

© 2013 Open Mobile Alliance Ltd. All Rights Reserved.
Used with the permission of the Open Mobile Alliance Ltd. under the terms as stated in this document.

Appendix A. Change History (Informative)

A.1 Approved Version History

Reference	Date	Description
n/a	n/a	No prior version

A.2 Draft/Candidate Version 2.1 History

Document Identifier	Date	Sections	Description
Draft Version OMA-ERELD-SUPL-V2_1	17 Jan 2012	All	Initial draft
	09 May 2012	2.1, 5.0	Updated document identifiers after RD and AD reviews complete. Updated ILP reference to 2.1.
Candidate Version OMA-ERELD-SUPL-V2_1	29 May 2012	n/a	Status changed to Candidate by TP TP ref # OMA-TP-2012-0206-INP_SUPL_21_RD_and_AD_for_Candidate
Draft Versions OMA-ERELD-SUPL-V2_1	23 July 2012	5.0	Updated document identifiers after updated TS ULP
	11 Dec 2012	5.0	Updated document identifiers after updated TS ULP
Candidate Version OMA-ERELD-SUPL-V2_1	15 Jan 2013	n/a	Status changed to Candidate by TP OMA-TP-2012-0468-INP_SUPL_V2.1_ERP_and_ETR_for_Candidate_Approval
Draft Version OMA-ERELD-SUPL-V2_1	11 Jul 2013	5	Update of supporting file document listing
Candidate Version OMA-ERELD-SUPL-V2_1	11 Jul 2013	All	Status changed to Candidate by TP TP Ref # OMA-TP-2013-0219-INP_SUPL_V2_1_ERP_for_Notification

© 2013 Open Mobile Alliance Ltd. All Rights Reserved.
Used with the permission of the Open Mobile Alliance Ltd. under the terms as stated in this document.