



Enabler Test Requirements for SUPL 3.0

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1. Scope

The Enabler Test Requirements (ETR) document for the SUPL Enabler is created and maintained by the OMA-LOC Technical Working Group.

The ETR document is intended to cover at least those requirements collected in the Requirements Document (RD) and the Architecture Document (AD) in addition to any other items the OMA-LOC Working Group has identified as important enough to warrant attention from interoperability perspective and identify any technical functionalities that should be covered by testing. Specifically the OMA-TS-ULP-V3_0 [OMA-ULP], OMA-TS-ILP-V3_0 [OMA-ILP], and OMA-ERELED-SUPL-V3_0 are considered to be of relevance in that respect.

2. References

2.1 Normative References

- [RFC2119] “Key words for use in RFCs to Indicate Requirement Levels”, S. Bradner, March 1997, [URL:http://www.ietf.org/rfc/rfc2119.txt](http://www.ietf.org/rfc/rfc2119.txt)
- [OMA-RLP] “Inter-Location Server Interface Specification”, Version 1.1, Open Mobile Alliance™, OMA-TS-RLP-Spec-V1.1, [URL:http://www.openmobilealliance.org/](http://www.openmobilealliance.org/)
- [OMA-ULP] “UserPlane for Location Protocol”, Version 3.0, Open Mobile Alliance™, OMA-TS-ULP-Spec-V3.0, [URL:http://www.openmobilealliance.org/](http://www.openmobilealliance.org/)
- [OMA-ILP] “Internal Location Protocol”, Version 3.1, Open Mobile Alliance™, OMA-TS-ILP-Spec-V3.0, [URL:http://www.openmobilealliance.org/](http://www.openmobilealliance.org/)

2.2 Informative References

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.

3.2 Definitions

Test Fest	Multi-lateral interoperability testing event
SUPL INIT	The SUPL INIT message is used by the SLP to initiate a SUPL session with the SET. This message is used in Network Initiated SUPL Services. This message contains the initial Target SET User Notification and Confirmation Privacy rules.

3.3 Abbreviations

ACA	Alternative Client authentication
AD	Architecture Document
D-SLP	Discovered SLP
E-SLP	Emergency SLP
H-SLP	Home SLP
MLP	Mobile Location Protocol
MLS	Mobile Location Service
OMA	Open Mobile Alliance
QoP	Quality of Position
RD	Requirements Document
RLP	Roaming Location Protocol
SEK	SUPL Encryption Key
SET	SUPL Enabled Terminal
SLC	SUPL Location Center
SLP	SUPL Location Platform
SPC	SUPL Positioning Center
V-SLP	Visited SLP
V-SPC	Visited SPC

4. Introduction

The purpose of this Enabler Test Requirements document is to help guide the testing effort for the Enabler SUPL V3.0, documenting those areas where testing is most important to ensure interoperability of implementations.

The Enabler under consideration comprises the following specifications:

- OMA-SUPL V3.0: Secure User Plane Location
 - OMA-RD-SUPL-V3_0
 - OMA-AD-SUPL-V3_0
 - OMA-TS-ULP-V3_0
 - OMA-TS-ILP-V3_0
 - OMA-TS-SUPL-MO-V3_0

Generally, the testing activity aims at validating the normal working behaviour of the client/server interactions, as well as testing the error conditions whenever it is possible to set up the appropriate scenarios. The following sections provide a more detailed description of the testing requirements for SUPL V3.0.

This document also intends to provide some guidance on the prioritization of the specifications and features to be tested within Enabler SUPL V3.0

5. Test Requirements

Enabler SUPL V3.0 is intended to provide secure positioning over IP networks between a SET and an SLP. In principle any positioning method may be supported over any IP network.

Roaming between SUPL providers is facilitated by RLP V1.1 [OMA-RLP], which is part of the OMA - MLS enabler.

5.1 Enabler test requirements

The test requirements collected in this section are related to the Enabler SUPL V3.0.

In this section, it should be defined what specific functionalities of this Enabler shall or should be tested to ensure adequate operational of the implementations, including any security requirements and constraints on usage if specified (e.g. user can forward a media object but can not visualize it). That means that devices (clients/serves) shall do what they have to do and they shall not do what they are not allowed to do. Both types of test requirements (positive and negative testing) should be included here if so required.

Besides this information, OMA Architecture specifies a “Framework Architecture”, consisting of a set of common functions that need to be invoked in most use cases involving the different Service Enablers. The functionality requirements defined in the OMA Framework Architecture, i.e. authentication, authorization, charging, billing, common directory, etc. should also be listed in this table. Use cases are the main input to identify test requirements.

The following test requirements should cover both Conformance test requirements (i.e. functionality to be tested to verify whether it is implemented either in the client side or in the server side) and Interoperability test requirements (i.e. client/server interactions one with another)

The following sections (Mandatory and Optional test requirements) could also be separated for client and server test requirements.

The tables for the mandatory and optional test requirements include the following columns:

FEATURE KEY:	A set of characters uniquely identifying the enabler test requirement to be tested. It is suggested that the Feature Key is no longer than 4 to 5 characters. The purpose of the Feature Key is that when used, it distinctly refers to only one feature to be tested.
FEATURE DESCRIPTION:	A description of a technical specification feature to be tested.
FEATURE TEST REQUIREMENTS:	A description of what shall be tested for the feature,

The requirements have been split into two sections to cover the following

- Basic Functionality and non-roaming call-flows

Basic Functionality and non-roaming call-flows cover all basic functionality applicable to all modes of SUPL. The call flows should cover both Network Initiated and SET Initiated SUPL sessions. The test requirements apply to all Air Interfaces supported by SUPL 3.0

- Roaming call-flows

In general the Roaming call flows should be tested as part of RLP / MLS testing and therefore do not need to be re-tested as part of SUPL 3.0.

5.1.1 Mandatory test requirements

Mandatory test requirements are covering mandatory features/functions of an Enabler which shall always be implemented in the client/server

NOTE: This table needs to be filled out at a level where ambiguity is not present but details are not overwhelming.

Ambiguity means that the details do not have several meanings nor have more than one possible implementation path following.

5.1.1.1 Basic Functionality

	Feature Key	Feature Description	Feature Test Requirements
Normal Flow	CP	Common Part of ULP Message	Verify the Common Part of ULP message including Version support and Session ID support
	SID	SUPL INIT delivery	Verify the possible transport mechanisms used for the SUPL INIT message.
	KM1	Key Management for SUPL Authentication - Deployments Supporting GBA	Verify correct operation
	TLS	TLS Handshake and Negotiation of SET-SLC Mutual-Authentication Method	Verify correct operation
	ACA	Alternative Client Authentication (ACA) Mechanisms - ACA Procedures	Verify correct operation
	SI1	Processing of the SUPL INIT Messages - Network Based Authentication of the SUPL INIT Message	Verify correct operation
	SI2	Processing of the SUPL INIT Messages - Negotiating the Level of SUPL INIT Protection	Verify correct operation with alternative Protection levels
	CDI	Confidentiality and Data Integrity	Verify correct operation with alternative Cipherring suites
	NV	Notification and Verification	Verify the correct operation and call flows for all the Notification & Verification values.
	NB	Basic Network Initiated flows	Verify the call flows using all possible positioning methods and verify that a successful positioning procedure is completed in each case.
	SB	Basic SET Initiated flows	Verify the call flows using all possible positioning methods and verify that a successful positioning procedure is completed in each case.
	NPP	Negotiation of Positioning method and Protocol	Verify that a consistent choice of positioning method and positioning protocol are made based upon the capabilities of SLP and SET.
ES1	Network Initiated Emergency Services Location Requests	Verify the call flows using all possible positioning methods and verify that a successful positioning procedure is completed in each case.	
Error Flow	CPE	Common Part of ULP Message errors	Verify correct operation of the Common Part of ULP message with incompatible Versions and Invalid Session IDs
	SAF	SET Authorization Failure	Verify correct operation
	NCT	Network cancels the triggered location request	Verify correct call flow.
	SCT	SET cancels the triggered location request	Verify correct call flow.
	STE	SUPL timer expiration	Verify correct operation
	PST	Premature Session Termination	Verify correct operation when the SET or the Network prematurely ends the SUPL session

Table 1: Applicability Table for Basic Functionality Mandatory Test Requirements

5.1.2 Optional test requirements

Optional test requirements are covering optional features/functions of an Enabler.

If an optional requirement of the Enabler is implemented in the client/server, this requirement SHALL be tested.

NOTE: This table needs to be filled out at a level where ambiguity is not present but details are not overwhelming.

Ambiguity means that the details do not have several meanings nor have more than one possible implementation path following.

5.1.2.1 Basic Functionality

	Feature Key	Feature Description	Feature Test Requirements
Normal Flow	AE	Authentication Mechanisms applicable to an E-SLP - Processing Emergency SUPL INIT messages	Verify correct operation
	NCL	Notification/Verification based on current location.	Verify the correct operation and call flows for all the Notification & Verification values.
	QOP	QoP	Verify the correct call flows when the various QoPs are specified.
	VEL	Velocity	Verify correct operation
	ALT	Altitude	Verify correct operation
	NPT	Network Initiated– Triggered Services: Periodic Triggers	Verify representative call flows using suitable positioning methods and verify that successful positioning procedures are completed in each case.
	SPT	SET Initiated– Triggered Services: Periodic Triggers	Verify representative call flows using suitable positioning methods and a variety of parameter values and verify that successful positioning procedures are completed in each case.
	NET	Network Initiated– Triggered Services: Event Triggers	Verify representative call flows using suitable positioning methods and a variety of parameter values and verify that successful positioning procedures are completed in each case.
	SET	SET Initiated– Triggered Services: Event Triggers	Verify representative call flows using suitable positioning methods and verify that successful positioning procedures are completed in each case.
	NVT	Network Initiated– Triggered Services: Velocity Triggers	Verify representative call flows using suitable positioning methods and a variety of parameter values and verify that successful positioning procedures are completed in each case.
	SVT	SET Initiated– Triggered Services: Velocity Triggers	Verify representative call flows using suitable positioning methods and verify that successful positioning procedures are completed in each case.
	NGS	Network Initiated – GSS	Verify representative call flows using suitable positioning methods and verify that successful positioning procedures are completed in each case.
	SGS	SET Initiated – GSS	Verify representative call flows using suitable positioning methods and verify that successful positioning procedures are completed in each case.
	STPR1	SET-Initiated 3 rd Party Location Request	Verify correct call flow.
	STPR2	SET-Initiated 3 rd Party Relative Location Request	Verify correct call flow.
	STT	SET-Initiated Location Request with Transfer to Third Party	Verify correct call flow.
	HP	Retrieval of Historical Positions and/or Enhanced Cell Sector Measurements	Verify correct call flow.

	Feature Key	Feature Description	Feature Test Requirements
	CAT	Network / SET Capabilities Change for Area Event Triggered Scenarios	Verify correct call flows.
	SIQ1	Session Info Query with Re-notification	Verify correct call flows.
	SIQ2	Session Info Query with Session Termination	Verify correct call flows.
	LUI	Location URI Request	Verify correct call flow.
	DEA1	D-SLP and E-SLP Authorization by the H-SLP	Verify correct call flow.
	DEA2	D-SLP or E-SLP Authorization by a Proxy D-SLP or Proxy E-SLP	Verify correct call flow.
	DAN	D-SLP Access Notification to the H-SLP	Verify correct call flow.
	ES2	SET Initiated Emergency Services Location Requests	Verify the call flows using all possible positioning methods and verify that a successful positioning procedure is completed in each case.
	DCT	Device Certificate (DCert) Security Mechanisms	Verify correct operation
	SEK	SEK based Security Mechanisms	Verify correct operation
	Error Flow		

Table 2: Applicability Table for Basic Functionality Optional Test Requirements

5.2 Cross Version compatibility

Cross version compatibility is an important feature of SUPL V3.0 and should be tested. As a minimum, the following cases should be tested to ensure compliance with the requirements of SUPL V3.0

5.2.1 SET V3.0

Compatibility with:

- SLP supporting V1.0
- SLP supporting V2.0
- SLP supporting <V3.0
- SLP supporting >V3.0

5.2.2 SLP V3.0 supporting <V3.0

Compatibility with:

- SET supporting V1.0
- SET supporting V2.0
- SET supporting <V3.0
- SET supporting >V3.0

5.2.3 SLP V3.0 not supporting <V3.0

Compatibility with:

- SET supporting V1.0
- SET supporting V2.0
- SET supporting <V3.0

- SET supporting >V3.0

5.3 Enabler dependencies

Enabler SUPL V3.0 has a dependency on the following:

- RLP V1.1 for SUPL roaming.
- MLP V3.3 for Network Initiated scenarios.
- LPP/LPpE and TIA-801 positioning protocols.
- ASN.1 BASIC-PER, unaligned encoding for the Lpp protocol.
- TCP as transport protocol.
- UDP as transport protocol.

Appendix A. Change History (Informative)

A.1 Approved Version History

Reference	Date	Description
OMA-ETR-SUPL-V1_0_1	27 Jan 2006	Aproved version SUPL V1.0.

A.2 Draft/Candidate Version History

Document Identifier	Date	Sections	Description
Draft versions OMA-ETR-SUPL-V3.0	29 Jun 2011	N/A	Initial Draft
	22 Aug 2011	Throughout the document	Applied all changes assigned to the editor from OMA-CONRR-SUPL-V3_0-20110804-D
	31 Aug 2011	5.1.1.1	CR implemented: OMA-LOC-2011-0274
Candidate versions OMA-ETR-SUPL-V3.0	20 Sep 2011	All	TP approved via R&A: OMA-TP-2011-0332-INP_SUPL_3.0_ERP_for_Candidate_approval