Enabler Test Report

Secure User Plane for Location v1.0

OMA TestFest (May 2007)
Version 4th June 2007

Open Mobile Alliance
OMA-EnablerTestReport-TestFest-19-May-2007-SUPL-10-20070604

Contents

1. Scope

This report describes the results from the testing carried out at OMA TestFest-19 (May 2007) concerning the Secure User Plane for Location Version 1.0 Enabler.

2. References

2.1 Normative References

[OMAIOPPROC] "OMA Interoperability Policy and Process", Version 1.3, Open Mobile Alliance™, OMA-ORG-IOP-Process-V1_3, 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

[ERELD] Enabler Release Definition, OMA-ERELD-SUPL-V1_0-20070122-C; URL:http://www.openmobilealliance.org/

[SUPL_SPEC] Enabler Release Package, OMA-ERP-SUPL-V1_0-20070122-C; URL:http://www.openmobilealliance.org/

[ETS] Enabler Test Specification, OMA-ETS-SUPL-V1_0-20070116-C; URL:http://www.openmobilealliance.org/

[ETG] Enabler Test Guidelines, OMA-ETG-SUPL-V1_0-20060614-A; URL:http://www.openmobilealliance.org/

[SUPL_EICS] Enabler Implementation Conformance Statements, OMA-EICS-Client-SUPL-V1_0-20060526-A, and OMA-EICS-Server-SUPL-V1_0-20060526-A; URL:http://www.openmobilealliance.org/

2.2 Informative References

[OMADICT] Dictionary for OMA Specification, OMA-Dictionary http://www.openmobilealliance.org/

3. Terminology and Conventions

3.1 Conventions

This is an informative document, i.e. the document does not intend to contain normative statements.

3.2 Definitions

MLS application	An application which requests and consumes the location information
Network Initiated SUPL Services	Network Initiated SUPL Services are services which originate from within the SUPL network as opposed to the SET. For these services, the SUPL Agent resides in the Network.
Proxy Mode	The SPC system will not have direct communication with the SET. In this environment the SLC system will act as a proxy between the SET and the SPC.
Non-Proxy Mode	The SPC system will have direct communication with the SET.
SET Initiated SUPL Services	SET Initiated SUPL Services are services which originate from the SET. For these services, the SUPL Agent resides within the SET.
SUPL Agent	Service access point which accesses the network resources to obtain location information.
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 Centre (SLC)	Coordinates the operations of SUPL in the network and interacts with the SUPL Enabled Terminal (SET) over User Plane bearer.
SUPL Location Platform (SLP)	Entity responsible for SUPL Service Management and Position Determination. SLP contains the SLC and SPC Functions.
SUPL Positioning Centre (SPC)	Entity in the SUPL network responsible for all messages and procedures required for position calculation and for the delivery of assistance data.
TestFest	Multi-lateral interoperability testing event
Trusted Zone	An OMA staff function to provide a neutral confidential information and results collection service to OMA Members. The Trusted Zone is responsible for all reports resulting from an OMA Test Event and to ensure that all general reports cannot attributed to any one individual participating company

3.3 Abbreviations

AFLT	Advanced Forward Link Trilateration
A-GPS	Assisted GPS
CID	Cell ID
CI	Cell Identity (3GPP)
ECID	Enhanced Cell ID
EOTD	Enhanced Observed Time Difference
ERELD	Enabler Release Definition
ERP	Enabler Release Package
ETG	Enabler Test Guidelines

ETS	Enabler Test Specification
FFS	For Further Study
FQDN	Fully Qualified Domain Name
GMLC	Gateway Mobile Location Center
GMT	Greenwich Mean Time
GPS	Global Positioning System
H-SLP	Home SLP
IMSI	International Mobile Subscriber Identity
INC	Inconclusive
IP	Internet Protocol
LAC	Location Area Code (3GPP)
LCS	Location Services
MAC	Message Authentication Code
MCC	Mobile Country Code (3GPP)
MLC	Mobile Location Center
MLP	Mobile Location Protocol
MLS	Mobile Location Services
MNC	Mobile Network Code (3GPP)
MNO	Mobile Network Operator
MSID	Mobile Station Identifier
N/A	Not Applicable
NID	Network ID (C.S0022-A V1.0)
NMR	Network Measurement Report
OMA	Open Mobile Alliance
OT	Out of Time
OTDOA	Observed Time Difference of Arrival
PAP	WAP Push Access Protocol
PPG	Push Proxy Gateway
PR	Problem Report
QoP	Quality of Position
RLP	Roaming Location Protocol
RRC	Radio Resource Control
RRLP	Radio Resource LCS Protocol
R-SLP	Requesting SLP
RNC	Radio Network Controller
SET	SUPL Enabled Terminal
SIM	Subscriber Identity Module
SLC	SUPL Location Center
SLIA	Standard Location Immediate Answer
SLIR	Standard Location Immediate Request

SLP	SUPL Location Platform
SMLC	Serving Mobile Location Center
SMS	Short Message Service
SMSC	Short Message Service Center
SPC	SUPL Positioning Center
SPCF	SUPL Position Calculation Function
SPF	SUPL Privacy Function
SRLIA	Standard Roaming Location Immediate Answer
SRLIR	Standard Roaming Location Immediate Request
SRRF	SUPL Reference Retrieval Function
SSF	SUPL Security Function
SSMF	SUPL Service Management Function
TBD	To Be Developed
TC	Test Case
TLS	Transport Layer Security
UE	User Equipment
ULP	Userplane Location Protocol
URI	Uniform Resource Identifier
URL	Uniform Resource Locator
V-SLP	Visited SLP
WAP	Wireless Application Protocol

4. Summary

This report gives details of the testing carried out during the OMA TestFest-19 (May 2007) for Secure User Plane for Location (SUPL) v1.0.

The report is compiled on behalf of OMA by the OMA Trusted Zone.

The work and reporting has followed the OMA IOP processes and policies [IOPPROC].

5. Test Details

5.1 Documentation

This chapter lists the details of the enabler and any documentation, tools or test suites used to prove the enabler.

Date:	17th to 25th May 2007
Location:	Beijing, China
Enabler:	Secure User Plane for Location (SUPL) v1.0
Process:	OMA Interoperability Policy and Process [OMAIOPPROC]
Type of Testing	Interoperability Testing
Products tested:	Client-to-server,
Test Guidelines:	SUPL Enabler Test Guidelines - OMA-ETG-SUPL-V1_0-20060614-A [ETG]
Test Specification:	SUPL Enabler Test Specification - OMA-ETS-SUPL-V1_0-20070116-C [ETS]
Test Tool:	None
Test Code:	None
Type of Test event:	TestFest
Participants:	Ericsson, Motorola, NemeriX,Nokia Product Platforms, TeleCommunication Systems, Inc. *plus 2 other companies*
Number of Client Implementations:	5
Participating Technology Providers for clients:	NemeriX, Nokia Product Platforms, *plus 3 other clients*
Implementation IDs for each client:	NemeriX SUPL Client, Nokia SUPL Client 2 (prototype testing) *plus 3 other implementations*
Number of Server Implementations:	3
Participating Technology Providers for servers:	Ericsson, Motorola, TeleCommunication Systems, Inc.
Implementation IDs for each server:	Ericsson GMPC, Motorola MALS, TeleCommunication Systems Xypoint SUPL Server
Number of test sessions completed:	14

5.2 Test Case Statistics

5.2.1 Test Case Summary

This chapter gives an overview of the result for all test cases included in [ETS].

The following status is used in the tables below:

- Total number of TCs: Used in the summary to indicate how many test cases there are in total.
- Number of passed: Used in the summary to indicate how many of the total testcases that successfully has been passed.
- Number of failed: Used in the summary to indicate how many of the total testcases that has failed.
- Number of N/A: Used in the summary to indicate how many of the total testcases that has not be run due to that the implementation(s) do not support the functionality required to run this test case.
- Number of OT: Used in the summary to indicate how many of the total testcases that has not be run due to no time to run the test case.
- Number of INC: Used in the summary to indicate how many of the total testcases that has not been run due to that the functionality could not be tested due to an error in the implementation in another functionality that is required to run this test case.

Test Section:	Number of test sessions:	Total number of TCs:	Number of Passed:	Number of Failed:	Number of N/A:	Number of OT:	Number of INC:	Total:
Client to Server TCs	14	81	461	0	668	0	5	1134
Total	**14**	**81**	**461**	**0**	**668**	**0**	**5**	**1134**

Table 1. Test Summary Table

5.2.2 Test Case List

This chapter lists the statistics for all test cases included in [ETS].

The following status is used in the tables below:

- **No. of runs(R):** Used to indicate how many times the test cases have been run in total.
- **No. of passed(P):** Used to indicate how many times the test case has been run with successful result.
- **No. of failed(F):** Used to indicate how many times the test case has been run with failed result
- **No. of OT(O):** Used to indicate how many times the test case has not been run due to no time available.
- **No. of INC(I):** Used to indicate how many times the test case has not been run due to errors being found in other functionality required for running this test case.
- **PR:** Used to indicate if any PRs (Problem Reports) have been issued during testing.
- **Note:** Used to indicate the cause of Inconclusive or Fail verdicts.

Tests for SUPL Enabler TestFest Taken From OMA-ETS-SUPL-V1_0-20061213-D

Test Case:	Test Case Description:	R	P	F	O	I	PR:	Note:
SUPL-1.0-int-000	To test Cell ID positioning method when SET is not roaming.	14	14	0	0	0		
SUPL-1.0-int-010	To test SET and H-SLP mutual authentication when H-SLP does not support PSK-TLS authentication.	2	1	0	0	1		
SUPL-1.0-int-020	To test Cell ID positioning method when SET is roaming and position calculation is done by H-SLP (Proxy Mode).	5	5	0	0	0		
SUPL-1.0-int-030	To test Cell ID positioning method when SET is roaming and position calculation is done by V-SLP (Proxy Mode).	0	0	0	0	0		
SUPL-1.0-int-200	To test SET-assisted A-GPS positioning method when SET is not roaming.	11	11	0	0	0		
SUPL-1.0-int-201	To test SET-based A-GPS positioning method when SET is not roaming.	14	14	0	0	0		
SUPL-1.0-int-202	To test Autonomous GPS positioning method when SET is not roaming.	0	0	0	0	0		

Test Case:	Test Case Description:	R	P	F	O	I	PR:	Note:
SUPL-1.0-int-203	To test AFLT positioning method when SET is not roaming.	0	0	0	0	0		
SUPL-1.0-int-204	To test Enhanced Cell ID positioning method when SET is not roaming.	4	4	0	0	0		
SUPL-1.0-int-205	To test E-OTD positioning method when SET is not roaming.	0	0	0	0	0		
SUPL-1.0-int-206	To test OTDOA positioning method when SET is not roaming.	0	0	0	0	0		
SUPL-1.0-int-210	To test that the returned position fulfills the requested horizontal accuracy. SET is not roaming.	14	14	0	0	0		
SUPL-1.0-int-211	To test that a position is returned within the specified response time. SET is not roaming	11	11	0	0	0		
SUPL-1.0-int-212	To test that altitude is returned although the requested accuracy may not be fulfilled. SET is not roaming	14	14	0	0	0		
SUPL-1.0-int-213	To test that an error message is returned when the requested vertical accuracy can not be fulfilled. SET is not roaming	9	9	0	0	0		
SUPL-1.0-int-214	To test that a position is returned although the requested horizontal accuracy may not be fulfilled. SET is not roaming	14	14	0	0	0		
SUPL-1.0-int-215	To test that an error message is returned when the requested horizontal accuracy can not be fulfilled. SET is not roaming.	14	14	0	0	0		
SUPL-1.0-int-216	To test that the previously computed position is returned when the previously computed position fulfils the specified age limit. SET is not roaming.	7	7	0	0	0		
SUPL-1.0-int-217	To test that the current position is returned when a previously computed position does not fulfil the specified age limit. SET is not roaming.	12	12	0	0	0		

Test Case:	Test Case Description:	R	P	F	O	I	PR:	Note:
SUPL-1.0-int-218	To test that an error message is returned when current location is requested and the SET is switched off.	14	14	0	0	0		
SUPL-1.0-int-219	To test that the previously computed position is returned when current or last known location is requested and the SET is switched off.	10	9	0	0	1		Note 001
SUPL-1.0-int-220	To test that a previously computed position stored in the SET is returned to the H-SLP when the requested QoP is fulfilled.	7	6	0	0	1		
SUPL-1.0-int-221	To test that the current position is returned to the H-SLP when the requested QoP is not fulfilled.	9	9	0	0	0		
SUPL-1.0-int-240	To test that the velocity of the SET can be returned when the SET-based A-GPS positioning method is used. SET is not roaming	6	6	0	0	0		
SUPL-1.0-int-241	To test that the velocity of the SET can be returned when the SET-assisted A-GPS positioning method is used. SET is not roaming	7	7	0	0	0		
SUPL-1.0-int-250	To test Notification only. SET is not roaming.	14	14	0	0	0		
SUPL-1.0-int-251	To test Notification and Verification Allowed on No Answer. The SET User answers and accepts the positioning request. SET is not roaming.	14	14	0	0	0		
SUPL-1.0-int-252	To test Notification and Verification Allowed on No Answer. The SET User answers and rejects the positioning request. SET is not roaming.	14	14	0	0	0		
SUPL-1.0-int-253	To test Notification and Verification Allowed on No Answer. The SET User does not answer, which means that the positioning request is accepted. SET is not roaming.	14	14	0	0	0		

Test Case:	Test Case Description:	R	P	F	O	I	PR:	Note:
SUPL-1.0-int-254	To test Notification and Verification Denied on No Answer. The SET User answers and accepts the positioning request. SET is not roaming.	14	14	0	0	0		
SUPL-1.0-int-255	To test Notification and Verification Denied on No Answer. The SET User answers and rejects the positioning request. SET is not roaming.	14	14	0	0	0		
SUPL-1.0-int-256	To test Notification and Verification Denied on No Answer. The SET User does not answer, which means that the positioning request is denied. SET is not roaming.	14	14	0	0	0		
SUPL-1.0-int-257	To test Privacy Override. SET is not roaming.	14	14	0	0	0		
SUPL-1.0-int-258	To test that the Requestor Id can be presented to the SET User. SET is not roaming.	11	11	0	0	0		
SUPL-1.0-int-259	To test that the Client Name (name of the network resident MLS application) can be presented to the SET User. SET is not roaming.	12	12	0	0	0		
SUPL-1.0-int-270	To test SET-assisted A-GPS Positioning Method when SET is roaming and position calculation is done by H-SLP (Proxy Mode).	4	4	0	0	0		
SUPL-1.0-int-271	To test SET-based A-GPS Positioning Method when SET is roaming and position calculation is done by H-SLP (Proxy Mode).	5	5	0	0	0		
SUPL-1.0-int-272	To test Autonomous GPS Positioning Method when SET is roaming and position calculation is done by H-SLP (Proxy Mode).	0	0	0	0	0		
SUPL-1.0-int-273	To test AFLT Positioning Method when SET is roaming and position calculation is done by H-SLP (Proxy Mode).	0	0	0	0	0		
SUPL-1.0-int-274	To test Enhanced Cell ID Positioning Method when SET is roaming and position calculation is done by H-SLP (Proxy Mode).	2	2	0	0	0		

Test Case:	Test Case Description:	R	P	F	O	I	PR:	Note:
SUPL-1.0-int-275	To test E-OTD Positioning Method when SET is roaming and position calculation is done by H-SLP (Proxy Mode).	0	0	0	0	0		
SUPL-1.0-int-276	To test OTDOA Positioning Method when SET is roaming and position calculation is done by H-SLP (Proxy Mode).	0	0	0	0	0		
SUPL-1.0-int-280	To test SET-assisted A-GPS Positioning Method when SET is roaming and position calculation is done by V-SLP (Proxy Mode).	0	0	0	0	0		
SUPL-1.0-int-281	To test SET-based A-GPS Positioning Method when SET is roaming and position calculation is done by V-SLP (Proxy Mode).	0	0	0	0	0		
SUPL-1.0-int-282	To test Autonomous GPS Positioning Method when SET is roaming and position calculation is done by V-SLP (Proxy Mode).	0	0	0	0	0		
SUPL-1.0-int-283	To test AFLT Positioning Method when SET is roaming and position calculation is done by V-SLP (Proxy Mode).	0	0	0	0	0		
SUPL-1.0-int-284	To test Enhanced Cell ID Positioning Method when SET is roaming and position calculation is done by V-SLP (Proxy Mode).	0	0	0	0	0		
SUPL-1.0-int-285	To test E-OTD Positioning Method when SET is roaming and position calculation is done by V-SLP (Proxy Mode).	0	0	0	0	0		
SUPL-1.0-int-286	To test OTDOA Positioning Method when SET is roaming and position calculation is done by V-SLP (Proxy Mode).	0	0	0	0	0		
SUPL-1.0-int-310	To test that Requesting SLP (R-SLP) forwards a positioning request from a network resident MLS application to the SET's home SLP (H-SLP). The H-SLP determines the position of the SET and returns the position, through the R-SLP, to the network resident MLS application. SET is not roaming.	0	0	0	0	0		

Test Case:	Test Case Description:	R	P	F	O	I	PR:	Note:
SUPL-1.0-int-500	To test Cell ID positioning method when SET is not roaming.	12	12	0	0	0		
SUPL-1.0-int-510	To test SET and H-SLP mutual authentication when H-SLP does not support PSK-TLS authentication.	3	2	0	0	1		
SUPL-1.0-int-520	To test Cell ID positioning method when SET is roaming and position calculation is done by H-SLP (Proxy Mode).	5	5	0	0	0		
SUPL-1.0-int-530	To test Cell ID positioning method when SET is roaming and position calculation is done by V-SLP (Proxy Mode).	1	1	0	0	0		
SUPL-1.0-int-600	To test SET-assisted A-GPS positioning method when SET is not roaming.	11	11	0	0	0		
SUPL-1.0-int-601	To test SET-based A-GPS positioning method when SET is not roaming.	14	14	0	0	0		
SUPL-1.0-int-602	To test Autonomous GPS positioning method when SET is not roaming	1	1	0	0	0		
SUPL-1.0-int-603	To test AFLT positioning method when SET is not roaming.	0	0	0	0	0		
SUPL-1.0-int-604	To test Enhanced Cell ID positioning method when SET is not roaming.	4	3	0	0	1		
SUPL-1.0-int-605	To test E-OTD positioning method when SET is not roaming.	0	0	0	0	0		
SUPL-1.0-int-606	To test OTDOA positioning method when SET is not roaming.	0	0	0	0	0		
SUPL-1.0-int-610	To test that the returned position fulfills the requested horizontal accuracy. SET is not roaming.	14	14	0	0	0		
SUPL-1.0-int-611	To test that a position is returned within the specified response time. SET is not roaming	10	10	0	0	0		Note 002
SUPL-1.0-int-612	To test that altitude is returned. SET is not roaming	14	14	0	0	0		

Test Case:	Test Case Description:	R	P	F	O	I	PR:	Note:
SUPL-1.0-int-613	To test that the previously computed position is returned when the previously computed position fulfils the specified age limit. SET is not roaming.	8	8	0	0	0		
SUPL-1.0-int-614	To test that the current position is returned when a previously computed position does not fulfil the specified age limit. SET is not roaming.	9	9	0	0	0		
SUPL-1.0-int-630	To test that the velocity of the SET can be returned when the SET-assisted A-GPS positioning method is used. SET is not roaming	5	5	0	0	0		
SUPL-1.0-int-640	To test SET-assisted A-GPS Positioning Method when SET is roaming and position calculation is done by H-SLP (Proxy Mode).	4	4	0	0	0		
SUPL-1.0-int-641	To test SET-based A-GPS Positioning Method when SET is roaming and position calculation is done by H-SLP (Proxy Mode).	5	5	0	0	0		
SUPL-1.0-int-642	To test Autonomous GPS Positioning Method when SET is roaming and position calculation is done by H-SLP (Proxy Mode).	0	0	0	0	0		
SUPL-1.0-int-643	To test AFLT Positioning Method when SET is roaming and position calculation is done by H-SLP (Proxy Mode).	0	0	0	0	0		
SUPL-1.0-int-644	To test Enhanced Cell ID Positioning Method when SET is roaming and position calculation is done by H-SLP (Proxy Mode).	2	2	0	0	0		
SUPL-1.0-int-645	To test E-OTD Positioning Method when SET is roaming and position calculation is done by H-SLP (Proxy Mode).	0	0	0	0	0		
SUPL-1.0-int-646	To test OTDOA Positioning Method when SET is roaming and position calculation is done by H-SLP (Proxy Mode).	0	0	0	0	0		

Test Case:	Test Case Description:	R	P	F	O	I	PR:	Note:
SUPL-1.0-int-650	To test SET-assisted A-GPS Positioning Method when SET is roaming and position calculation is done by V-SLP (Proxy Mode).	0	0	0	0	0		
SUPL-1.0-int-651	To test SET-based A-GPS Positioning Method when SET is roaming and position calculation is done by V-SLP (Proxy Mode).	0	0	0	0	0		
SUPL-1.0-int-652	To test Autonomous GPS Positioning Method when SET is roaming and position calculation is done by V-SLP (Proxy Mode).	0	0	0	0	0		
SUPL-1.0-int-653	To test AFLT Positioning Method when SET is roaming and position calculation is done by V-SLP (Proxy Mode).	0	0	0	0	0		
SUPL-1.0-int-654	To test Enhanced Cell ID Positioning Method when SET is roaming and position calculation is done by V-SLP (Proxy Mode).	0	0	0	0	0		
SUPL-1.0-int-655	To test E-OTD Positioning Method when SET is roaming and position calculation is done by V-SLP (Proxy Mode).	0	0	0	0	0		
SUPL-1.0-int-656	To test OTDOA Positioning Method when SET is roaming and position calculation is done by V-SLP (Proxy Mode).	0	0	0	0	0		

Table 2. Test Case Counts

5.3 Notes

001	Test case is not valid.
002	What and when should the server return? Test case unclear

5.3.1 Problem Reports

During the activities for TestFest-19, the following problem reports were generated relating to the test materials and test process:

PR Number	Affecting	Description	Test Case reference / Specification reference
0004	EICS	Inconsistent contruction of SCR status for RLP related features.	OMA-EICS-Server-SUPL-V1_0-20060526-A

Table 4. Problem Reports

Full details of all Problem Reports can be found at:

http://www.openmobilealliance.org/OMA-Problem-Reporting-System.html

6. Confirmation

This signature states that the included information is true and valid.

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OMA Trusted Zone

Appendix A. Change History (Informative)

Type of Change	Date	Section	Description
Initial Release	1st June 2007	All	First Version from TestFest-19
Correction of Results	4th June 2007	5.2.2	Correction of entries for SUPL-1.0-int-630, SUPL-1.0-int-640, SUPL-1.0-int-641, SUPL-1.0-int-644, where all results were marked not applicable, while some passes were achieved. No impact on overall summary table or comments.