



Enabler Test Report

Firmware Update Management Object v1.0

OMA TestFest (September 2006)
Version 22-Sep-2006

Open Mobile Alliance
OMA-Enabler_Test_Report-FUMO-10-2006-09-22

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1. Scope

This report describes the results from the testing carried out at OMA TestFest-16 (September 2006) concerning FUMO version 1.0.

2. References

2.1 Normative References

- [OMAIOPPROC] OMA Interoperability Policy and Process, <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](http://www.ietf.org/rfc/rfc2119.txt)
- [FUMOEICS] Enabler Implementation Conformance Statement, OMA FUMO 1.0 Client and Server Enabler Release, 13-July-2006, <http://www.openmobilealliance.org/>
- [ERELED] “Enabler Release Definition for FUMO”, Open Mobile Alliance™, OMA-ERELED-FUMO-V1_0" [URL:http://www.openmobilealliance.org](http://www.openmobilealliance.org)
- [FUMO] "Firmware Update Management Object" OMA-TS-DM-FUMO-V1_0, Open Mobile Alliance™" [URL:http://www.openmobilealliance.org/](http://www.openmobilealliance.org/)
- [ETP] Enabler Test Plan
- [ETS] OMA-ETS-FUMO_INT-V1_2-20060824-C Enabler Test Specification [ETS]

2.2 Informative References

- [OMADICT] Dictionary for OMA Specification, OMA-Dictionary <http://www.openmobilealliance.org/>
- [DM-v1.2] “OMA Device Management”. Open Mobile Alliance™. OMA-DRM-DM-v1_2. [URL:http://www.openmobilealliance.com/](http://www.openmobilealliance.com/).
- [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)
- [DM-V1_2 ETS] OMA-ETS-DM-V1_2, [URL:http://www.openmobilealliance.org/](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

Test Object	The implementation under test is referred to as the Test Object. In this document, the Client.
Test Case	A Test Case is an individual test used to verify the conformance of the Test Object to a particular mandatory feature of the protocol. A 4-digit number identifies Test Cases where the first two digits denote the Test Group ID.
Firmware Update	The process of transferring an update package to a mobile device and subsequently invoking an update agent to conduct firmware update in the device.
Alternate Download	The mechanism, alternative to OMA DM protocol, by which the update package can be downloaded to the device. For example, the OMA OTA v1.0 and later versions developed by the BAC-DLOTA working group is considered to be an alternative download mechanism.
Final Notification	An Alert 1226 based notification message sent to the DM server from the mobile device to indicate the successful or unsuccessful completion of some activity in the mobile device.

3.3 Abbreviations

OMA	Open Mobile Alliance
DDF	Device Description Framework
DL	Download
DLOTA	Download Over-The-Air
DM	Device Management
FW	Firmware
FUMO	Firmware Update Management Object
MO	Management Object
OTA	Over The Air

4. Summary

This report gives details of the testing carried out during the OMA TestFest-16 (September 2006) for FUMO 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 [OMAIOPPROC].

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:	8th to 15th September 2006
Location:	Düsseldorf, Germany
Enabler:	FUMO v1.0
Process:	OMA Interoperability Policy and Process [OMAIOPPROC]
Type of Testing	Interoperability Testing
Products tested:	Client-to-server
Test Plan:	FUMO Enabler Test Plan [ETP]
Test Specification:	FUMO Enabler Test Specification [ETS]
Test Tool:	None
Test Code:	None
Type of Test event:	TestFest
Participants:	iAnywhere, Innopath, Nokia, Synchronica PLC <i>plus two othr participants</i>
Number of Client Products:	4
Participating Technology Providers for clients:	iAnywhere, Innopath <i>plus two other clients</i>
Number of Server Products:	3
Participating Technology Providers for servers:	Innopath, Nokia and Synchronica PLC
Number of test sessions completed:	11

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 test cases successfully passed.
- **Number of failed:** Used in the summary to indicate how many of the total test cases failed.
- **Number of N/A:** Used in the summary to indicate how many of the total test cases have not been run due to one of the implementations not supporting the functionality required to run this test case.
- **Number of OT:** Used in the summary to indicate how many of the total test cases have not been run due to no time to run the test case.
- **Number of INC:** Used in the summary to indicate how many of the total test cases have not been run due to functionality not being tested due to an error in the implementation or other 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	11	19	154	13	39	3	0	209
Total	11	19	154	13	39	3	0	209

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 FUMO Enabler TestFest Taken From OMA-ETS-FUMO_INT-V1_2-20060824-C

Test Case:	Test Case Description:	R	P	F	O	I	PR:	Note:
FUMO-1.0-int-001	The purpose of this test is to verify that- The client supports the required FUMO elements and the required nodes in the DM tree The client can set and retrieve the optional elements of FUMO, if the optional elements are supported by the client	11	11	0	0	0	0001	
FUMO-1.0-int-002	The purpose of this test is to verify that- The client supports the required FUMO elements and the required nodes in the DM tree GET commands sent to the required elements to verify standard node inclusion in the DM tree are successful	11	8	0	0	0		
FUMO-1.0-int-003	The purpose of this test is to verify that- The client supports the required FUMO elements and the required nodes in the DM tree GET commands sent to the required elements to verify standard node inclusion in the DM tree are successful	11	8	0	0	0		

Test Case:	Test Case Description:	R	P	F	O	I	PR:	Note:
FUMO-1.0-int-004	The purpose of this test is to verify that- The client supports the required FUMO elements and the required nodes in the DM tree GET commands sent to the required elements to verify standard node inclusion in the DM tree are successful	11	11	0	0	0		
FUMO-1.0-int-005	The purpose of this test is to verify that- GET commands on the mandatory FUMO objects in the DM tree are successful	11	11	0	0	0		
FUMO-1.0-int-006	The purpose of this test is to verify that- A client device supporting FUMO, downloads an update package from a DM server using OMA-DM protocol The client device performs a successful firmware update on the client device The client device reports the State value successfully to the DM server	11	7	0	1	0		
FUMO-1.0-int-007	The purpose of this test is to verify that- A client device supporting FUMO, downloads an update package from a DM server using Alternative Download mechanism (e.g. DLOTA) The client device performs a successful firmware update on the client device using Exec on Update node The client device reports the State value successfully to the DM Server	11	7	1	0	0		

Test Case:	Test Case Description:	R	P	F	O	I	PR:	Note:
FUMO-1.0-int-008	<p>The purpose of this test is to verify that -</p> <p>A client device supporting FUMO, downloads an update package from a DM server using Alternative Download mechanism (e.g. DLOTA).</p> <p>The client device performs a successful firmware update on the client device using Exec on DownloadAndUpdate node</p> <p>The client device Reports the State value successfully to the DM server</p>	11	10	1	0	0		
FUMO-1.0-int-009	<p>The purpose of this test is to verify that-</p> <p>The client device supporting FUMO, downloads an update package from a DM server using OMA-DM protocol</p> <p>When an EXEC command is performed on the ../x*/Update, the client uses the existing update package on the client for the firmware update and does NOT download a new package even though a REPLACE has been performed on the x*/Download/PkgURL node.</p> <p>The client device performs a successful firmware update on the client device</p> <p>The client device reports the State value successfully to the DM server</p>	11	4	3	1	0		

Test Case:	Test Case Description:	R	P	F	O	I	PR:	Note:
<p>FUMO-1.0-int-010</p>	<p>The purpose of this test is to verify that- The client device supporting FUMO, downloads an update package from a DM server using OMA-DM protocol REPLACE is executed on the x*/DownloadAndUpdate/PkgURL When an EXEC command is performed on the ../x*/DownloadAndUpdate, the client ignores the existing update package on the client for the firmware update and downloads a new update package from the URL specified in ../x*/DownloadAndUpdate/PkgURL. The client device performs a successful firmware update on the client device using newly downloaded update package The client device reports the State value successfully to the DM server</p>	11	7	1	0	0		
<p>FUMO-1.0-int-011</p>	<p>The purpose of this test is to verify that- A client device supporting FUMO, downloads an update package from a DM server using OMA-DM protocol and Alternative Download mechanism (e.g. DLOTA) The client device performs a successful firmware update on the client device using Exec on Update node The client device reports the State value successfully to the DM Server</p>	11	7	1	0	0		

Test Case:	Test Case Description:	R	P	F	O	I	PR:	Note:
FUMO-1.0-int-012	<p>The purpose of this test is to verify that-</p> <p>A client device supporting FUMO, downloads an update package from a DM server using OMA-DM protocol and Alternative Download mechanism (e.g. DLOTA)</p> <p>The client device performs a successful firmware update on the client device using the correct update package provided at ./x*/DownloadAndUpdate/PkgURL</p> <p>The client device reports the State value successfully to the DM server</p>	11	6	1	0	0		
FUMO-1.0-int-013	<p>The purpose of this test is to verify that-</p> <p>A client device supporting FUMO, fails to download an update package due to Malformed or Bad URL</p> <p>The client device reports the appropriate Result Code successfully to the DM server</p>	11	11	0	0	0		
FUMO-1.0-int-014	<p>The purpose of this test is to verify that-</p> <p>A client device supporting FUMO, fails to download an update package due to missing Update packages i.e. The URI provided by the download descriptor is wrong.</p> <p>The client device reports the Result Code successfully to the DM server</p>	11	10	1	0	0		
FUMO-1.0-int-015	<p>The purpose of this test is to verify-</p> <p>Client behaviour when the download of an Update package using OMA-DM protocol is interrupted.</p> <p>The client device reports the appropriate Result Code successfully to the DM server</p>	11	7	1	0	0		

Test Case:	Test Case Description:	R	P	F	O	I	PR:	Note:
FUMO-1.0-int-016	The purpose of this test is to verify- Client behaviour when the download of an Update package using Alternate Download Mechanism (e.g. DLOTA) is interrupted. The client device reports the appropriate Result Code successfully to the DM server	11	8	3	0	0		
FUMO-1.0-int-017	The purpose of this test is to verify- Client behaviour when Update package is corrupted The client device reports the appropriate Result Code successfully to the DM server	11	11	0	0	0	0003	
FUMO-1.0-int-018	The purpose of this test is to verify - A client can schedule a query to the server to check if a firmware update is available A client device sends a Generic Alert to the server with appropriate fields and information A server device responds to a Generic Alert with correct Status code	11	5	0	0	0	0002	
FUMO-1.0-int-019	The purpose of this test is to verify - A user can initiate a query to check if a firmware update is available A client device sends a Generic Alert to the server with appropriate fields and information. A server device responds to a Generic Alert with correct Status code	11	5	0	0	0		

Table 2. Test Case Counts

5.2.3 Problem Reports

During the activities for TestFest16, the following problem reports were generated relating to the test materials and test process:

PR Number	Affecting	Description	Test Case reference / Specification reference
0001	Specification	FUMO 1.0 DDF doesn't seem to allow for the DM server to add nodes to the FUMO object.	FUMO-1.0-int-001/OMA-ERP-FUMO-V1.0_20060615-C section 5
0002	Specification	ETS test case 6.18 and 6.19 don't specify what behavior must occur on the server side when a user or device requested firmware update session is requested.	FUMO-1.0-int-018/OMA-ETS-FUMO-V1_0_0-20060712-D section 7.1
0003	Specification		FUMO-1.0-int-017/OMA-ERP-FUMO-V1.0_20060615-C section 6.2.4
0004	Specification	The FUMO specification no longer includes a DDF as an appendix.	OMA-ERP-FUMO-V1.0_20060615-C Appendix
0005	Specification	FUMO test specification could be more clear on the behavior for Synchronous and Asynchronous behavior for Exec and the Generic Alert.	OMA-ERP-FUMO-V1.0_20060615-C section 6.1, 6.2

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.

A handwritten signature in black ink, appearing to read "Alan P. [unclear]", with a horizontal line extending to the right.

OMA Trusted Zone

Appendix A. Change History (Informative)

Type of Change	Date	Section	Description
Initial Version	22 nd September 2006	All	First Version For TestFest-16