



Enabler Test Specification for FUMO 1.0

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1. Scope

This document describes the enabler test cases for FUMO 1.0 enabler. The test cases are aimed to verify that implementations are compliant to the FUMO 1.0 specifications.

2. References

2.1 Normative References

- [IOPPROC] “OMA Interoperability Policy and Process”, Version 1.3, Open Mobile Alliance™, OMA-IOP-Process, [URL:http://www.openmobilealliance.org/](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)
- [FUMO ERELD] OMA-ERELELD-FUMO-V1_0, Open Mobile Alliance™, [URL:http://www.openmobilealliance.org/](http://www.openmobilealliance.org/)
- [FUMO] OMA-TS-DM-FUMO-V1_0, Open Mobile Alliance™, [URL:http://www.openmobilealliance.org/](http://www.openmobilealliance.org/)
- [DM-V1_2 ETS] OMA-ETS-DM-V1_2, Open Mobile Alliance™, [URL:http://www.openmobilealliance.org/](http://www.openmobilealliance.org/)

2.2 Informative References

none

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”, are normative, unless they are explicitly indicated to be informative.

The following numbering scheme is used:

xxx-y.z-con-number where:

xxx	Name of enabler, e.g. MMS or Browsing
y.z	Version of enabler release, e.g. 1.2 or 1.2.1
'con'	Indicating this test is a conformance test case
number	Leap number for the test case

Or

xxx-y.z-int-number where:

xxx	Name of enabler, e.g. MMS or Browsing
y.z	Version of enabler release, e.g. 1.2 or 1.2.1
'int'	Indicating this test is a interoperability test case
number	Leap number for the test case

3.2 Definitions

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. Introduction

The purpose of this document is to provide test cases for the FUMO 1.0 Enabler Release [FUMO]. Test cases maybe executed with test tools like the SCTS.

The following items are needed at a high level to adequately execute the FUMO IOP test cases.

A device management client in the mobile device that is configured to interact with a device management server

- A Device Management (DM) client in the mobile device that is configured to interact with a DM server
- A DM server capable of accessing and setting firmware update management objects in a mobile device, if necessary
- A download mechanism, such as OMA-DM or DLOTA, for supporting download of update packages
- Client vendor must have sample firmware update packages available for the server to use. In addition, “corrupt” update packages will be needed to induce error flow behaviour.

5. Conformance Test Cases

There are no conformance cases identified for the Client and Server at this time. Mandatory SCR items will be covered in the interoperability test cases.

6. Interoperability Test Cases

6.1 FUMO Support - Verification of Tree structure for ../x*

Test Case Id	FUMO-1.0-int-001	
Test Object	Client & Server device	
Test Case Description	<p>The purpose of this test is to verify that-</p> <ol style="list-style-type: none"> 1. The client supports the required FUMO elements and the required nodes in the DM tree 2. The client can set and retrieve the optional elements of FUMO, if the optional elements are supported by the client 	
Specification Reference	[FUMO]	
SCR Reference	FWUPDATE-T-001 FWUPDATE-T-002 FWUPDATE-T-003 FWUPDATE-T-004 FWUPDATE-T-005	FWUPDATE-T-006 FWUPDATE-T-007 FWUPDATE-T-008 FWUPDATE-S-001 FWUPDATE-C-017
Preconditions	<ol style="list-style-type: none"> 1. The DM client must support firmware update 2. The DM client must be configured to work with a DM server 	
Test Procedure	<ol style="list-style-type: none"> 1. Perform an ADD to create the ../x* node in the management tree, if one does not exist 2. Perform a GET on node ../x**, to verify that ../x* was added and to determine whether sub-nodes are added automatically 3. If the child node names returned in step (2) include all of the required and optional nodes for which client support is indicated in the ICS, skip remaining test steps 4. Perform an ADD on the node ../x*/State. 5. If the client supports the node ../x*/PkgName, perform an ADD on that node 6. If the client supports the node ../x*/PkgVersion, perform an ADD on that node 7. If the client supports the node ../x*/Download, perform an ADD on that node. 8. If the client supports the node ../x*/Update, perform an ADD on that node 9. If the client supports the node ../x*/DownloadAndUpdate, perform an ADD on that node 10. If the client supports the node ../x*/Ext, perform an ADD on that node 11. Perform a GET on node ../x* to verify presence of sub-nodes 	

<p>Pass-Criteria</p>	<ol style="list-style-type: none"> 1. The client created a FUMO ../x* when requested by the server. ADD command returns a response of 200. 2. Verify that the GET command on node ../x* returns a response of 200 3. Verify the metatype is the Management Object identifier: “urn:oma:mo:oma-fumo:1.0” 4. Verify the GET performed on ../x* in either step (2) or step (11) indicates the presence of all required nodes and all optional nodes listed as supported in the Client ICS (as follows) but no other nodes: Required: State Optional: PkgName / PkgVersion / Download / Update / DownloadAndUpdate / Ext
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6.2 FUMO Support - Verification of Tree structure for ../x*/Download

<p>Test Case Id</p>	<p>FUMO-1.0-int-002</p>	
<p>Test Object</p>	<p>Client & Server device</p>	
<p>Test Case Description</p>	<p>The purpose of this test is to verify that-</p> <ol style="list-style-type: none"> 1. The client supports the required FUMO elements and the required nodes in the DM tree 2. GET commands sent to the required elements to verify standard node inclusion in the DM tree are successful 	
<p>Specification Reference</p>	<p>[FUMO]</p>	
<p>SCR Reference</p>	<p>FWUPDATE-T-001 FWUPDATE-T-002 FWUPDATE-T-010</p>	<p>FWUPDATE-C-017 FWUPDATE-S-001</p>
<p>Preconditions</p>	<ol style="list-style-type: none"> 1. The DM client must support firmware update 2. The DM client must be configured to work with a DM server 3. The Client ICS states that the MO supports the ../x*/Download node 	
<p>Test Procedure</p>	<ol style="list-style-type: none"> 1. Perform an ADD to create the ../x* node in the management tree, if one does not exist 2. Perform a GET on node ../x* to verify that ../x* was added and to determine whether sub-nodes are added automatically 3. If the child node names returned in step (2) include all of the required and optional nodes for which client support is indicated in the ICS, go to test step 6 4. Perform an ADD to create the ../x*/Download node 	

	<ol style="list-style-type: none"> 5. Perform an ADD to create the ../x*/Download/PkgURL node. 6. Perform a GET on node ../x*/Download
Pass-Criteria	<ol style="list-style-type: none"> 1. The client created a FUMO ../x* when requested by the server. ADD command returns a response of 200. 2. Verify that the GET command on node ../x*/Download returns a response of 200 3. Verify that the GET command on node ../x*/Download returns a response of 200 4. Verify that the PkgURL element was returned for the GET on node../x*/Download

6.3 FUMO Support - Verification of Tree structure for ../x*/Update

Test Case Id	FUMO-1.0-int-003	
Test Object	Client & Server device	
Test Case Description	<p>The purpose of this test is to verify that-</p> <ol style="list-style-type: none"> 1. The client supports the required FUMO elements and the required nodes in the DM tree 2. GET commands sent to the required elements to verify standard node inclusion in the DM tree are successful 	
Specification Reference	[FUMO]	
SCR Reference	FWUPDATE-T-001 FWUPDATE-T-004 FWUPDATE-T-011	FWUPDATE-C-017 FWUPDATE-S-001
Preconditions	<ol style="list-style-type: none"> 1. The DM client must support firmware update 2. The DM client must be configured to work with a DM server 3. The Client ICS states that the MO supports the ../x*/Update node 	
Test Procedure	<ol style="list-style-type: none"> 1. Perform an ADD to create the ../x* node in the management tree, if one does not exist 2. Perform a GET on node ../x* to verify that ../x* was added and to determine whether sub-nodes are added automatically 3. If the child node names returned in step (2) include all of the required and optional nodes for which client support is indicated in the ICS, go to test step 6 4. Perform an ADD to create the ../x*/Update node 5. Perform an ADD to create the ../x*/Update/PkgData node. 6. Perform a GET on node ../x*/Update 	

Pass-Criteria	<ol style="list-style-type: none"> 1. The client created a FUMO ../x* when requested by the server. ADD command returns a response of 200. 2. Verify that the GET command on node ../x*/Update returns a response of 200 3. Verify that the GET command on node ../x*/Update returns a response of 200 4. Verify that the PkgData element was returned for the GET on node ../x*/Update
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6.4 FUMO Support - Verification of Tree structure for ../x*/DownloadAndUpdate

Test Case Id	FUMO-1.0-int-004	
Test Object	Client & Server device	
Test Case Description	<p>The purpose of this test is to verify that-</p> <ol style="list-style-type: none"> 1. The client supports the required FUMO elements and the required nodes in the DM tree 2. GET commands sent to the required elements to verify standard node inclusion in the DM tree are successful 	
Specification Reference	[FUMO]	
SCR Reference	FWUPDATE-T-001 FWUPDATE-T-003 FWUPDATE-T-009	FWUPDATE-C-017 FWUPDATE-S-001
Preconditions	<ol style="list-style-type: none"> 1. The DM client must support firmware update 2. The DM client must be configured to work with a DM server 3. The Client ICS states that the MO supports the node ../x*/DownloadAndUpdate 	
Test Procedure	<ol style="list-style-type: none"> 1. Perform an ADD to create the ../x* node in the management tree, if one does not exist 2. Perform a GET on node ../x* to verify that ../x* was added and to determine whether sub-nodes are added automatically 3. If the child node names returned in step (2) include all of the required and optional nodes for which client support is indicated in the ICS, go to test step 6 4. Perform an ADD to create the ../x*/DownloadAndUpdate node 5. Perform an ADD to create the ../x*/DownloadAndUpdate/PkgURL node 6. Perform a GET on node ../x*/DownloadAndUpdate 	
Pass-Criteria	<ol style="list-style-type: none"> 1. The client created a FUMO ../x* when requested by the server. ADD command returns a response of 200. 	

	<ol style="list-style-type: none"> 2. Verify that the GET command on node ../x*/DownloadAndUpdate returns a response of 200 3. Verify that the PkgURL element was returned for the GET on node ../x*/DownloadAndUpdate
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6.5 FUMO Support - Verification of GET access on ../x*/State

Test Case Id	FUMO-1.0-int-005	
Test Object	Client & Server device	
Test Case Description	<p>The purpose of this test is to verify that-</p> <ol style="list-style-type: none"> 1. GET commands on the mandatory FUMO objects in the DM tree are successful 	
Specification Reference	[FUMO]	
SCR Reference	FWUPDATE-T-008 FWUPDATE-S-001	FWUPDATE-C-017
Preconditions	<ol style="list-style-type: none"> 1. The DM client must support firmware update 2. The DM client must be configured to work with a DM server 	
Test Procedure	<ol style="list-style-type: none"> 1. Perform an ADD to create the ../x* node in the management tree, if one does not exist 2. Perform an ADD on node ../x*/State if it does not already exist 3. Perform a GET on node ../x*/State 	
Pass-Criteria	<ol style="list-style-type: none"> 1. The client created a FUMO ../x* when requested by the server. ADD command returns a response of 200. 2. Verify that the GET command on node ../x*/State returns a response of 200 3. Verify that the State returned is one of the valid ones. The valid State values are enumerated in the Section Node:x/State in [FUMO]. 	

6.6 Successful Firmware Update using OMA-DM Large Object and EXEC on ../x*/Update Node

Test Case Id	FUMO-1.0-int-006
Test Object	Client & Server device
Test Case Description	<p>The purpose of this test is to verify that-</p> <ol style="list-style-type: none"> 1. A client device supporting FUMO, downloads an update package from a DM server using OMA-DM protocol 2. The client device performs a successful firmware update on the client

	device	
	3. The client device reports the State value successfully to the DM server	
Specification Reference	[FUMO]	
SCR Reference	FWUPDATE-S-001 FWUPDATE-S-002 FWUPDATE-S-003 FWUPDATE-S-004 FWUPDATE-C-001 FWUPDATE-C-002 FWUPDATE-C-010 FWUPDATE-C-011	FWUPDATE-C-012 FWUPDATE-C-013 FWUPDATE-C-014 FWUPDATE-C-015 FWUPDATE-C-016 FWUPDATE-C-017 FWUPDATE-C-018 FWUPDATE-C-019
Preconditions	<ol style="list-style-type: none"> 1. The client device must support FUMO 2. The DM client must support download of an update package from a DM server using OMA-DM protocol 3. The DM client must support Exec on ../x*/Update node 4. The DM client must be configured to work with a DM server 	
Test Procedure	<ol style="list-style-type: none"> 1. Perform an ADD to create the ../x* node in the management tree, if one does not exist 2. Perform an ADD/REPLACE on node ../x*/Update/PkgData. This is ADD/REPLACE with LargeObject. Expected result is 200. 3. Perform an EXEC on node ../x*/Update, optionally specifying the Correlator if supported by the server 4. Upon successful receipt of Generic Alert 1226 from the client, perform a GET on node../x*/State to verify that the State is set to a valid State 	
Pass-Criteria	<ol style="list-style-type: none"> 1. The client created a FUMO ../x* when requested by the server. ADD command returns a response of 200. 2. ADD/REPLACE on node ../x*/Update/PkgData returns a response of 200 3. EXEC command on node ../x*/Update returns a response of 200 or 202 (asynchronous) if the command is accepted for later processing. 4. Generic Alert 1226 returned by the client with : <ol style="list-style-type: none"> a. Result code 200 for success of update b. URI equal to FUMO URI ../x* c. Alert type of "org.openmobilealliance.dm.firmwareupdate.update" d. If the correlator was supplied on EXEC, the correct correlator 5. The ../x*/State is one of the valid terminating states. The valid State values are enumerated in the Section Node:x/State in [FUMO]. 6. The client device successfully performs the firmware update inline with the expectations of the update package 	

6.7 Successful Firmware Update using Alternative Download Mechanism and EXEC on ../x*/Update node

Test Case Id	FUMO-1.0-int-007	
Test Object	Client & Server device	
Test Case Description	<p>The purpose of this test is to verify that-</p> <ol style="list-style-type: none"> 1. A client device supporting FUMO, downloads an update package from a DM server using Alternative Download mechanism (e.g. DLOTA) 2. The client device performs a successful firmware update on the client device using Exec on Update node 3. The client device reports the State value successfully to the DM Server 	
Specification Reference	[FUMO]	
SCR Reference	FWUPDATE-S-001 FWUPDATE-S-002 FWUPDATE-S-003 FWUPDATE-S-004 FWUPDATE-C-001 FWUPDATE-C-002 FWUPDATE-C-003 FWUPDATE-C-004 FWUPDATE-C-005 FWUPDATE-C-006	FWUPDATE-C-011 FWUPDATE-C-012 FWUPDATE-C-013 FWUPDATE-C-014 FWUPDATE-C-015 FWUPDATE-C-016 FWUPDATE-C-017 FWUPDATE-C-018 FWUPDATE-C-019
Preconditions	<ol style="list-style-type: none"> 1. The DM client must support FUMO 2. The DM client must support download of an update package from a DM server using Alternative Download mechanism (e.g. DLOTA) 3. The DM client must support Exec on ../x*/Update node 4. The DM client must be configured to work with a DM server 	
Test Procedure	<ol style="list-style-type: none"> 1. Perform an ADD – to create the ../x* node in the management tree, if one does not exist 2. Perform an ADD/REPLACE on node ../x*/Download/PkgURL 3. Perform an EXEC on node ../x*/Download, optionally specifying the Correlator if supported by the server 4. Upon successful receipt of Generic Alert 1226 from the client, perform a GET on node ../x*/State to verify that the State is set to a valid State 5. Perform an EXEC on node ../x*/Update, optionally specifying the Correlator if supported by the server 6. Upon successful receipt of Generic Alert 1226 from the client, perform a GET on node ../x*/State to verify that the State is set to a valid State 	
Pass-Criteria	<ol style="list-style-type: none"> 1. The client created a FUMO ../x* when requested by the server. ADD command returns a response of 200. 	

	<ol style="list-style-type: none"> 2. ADD/REPLACE command on node ../x*/Download/PkgURL returns a response of 200 3. EXEC command on node ../x*/Download returns a response of 200 or 202 (asynchronous) if the command is accepted for later processing. 4. Generic Alert 1226 returned by the client with : <ol style="list-style-type: none"> a. Result code 200 for success of download b. URI equal to FUMO URI ../x* c. Alert type of "org.openmobilealliance.dm.firmwareupdate.download" d. If the correlator was supplied on EXEC, the correct correlator 5. The ../x*/State is one of the valid states. The valid State values are enumerated in the Section for Node:x/State in [FUMO]. 6. EXEC command on node ../x*/Update returns a response of 200 or 202 (asynchronous) if the command is accepted for later processing. 7. Generic Alert 1226 returned by the client with : <ol style="list-style-type: none"> a. Result code 200 for success of update b. URI equal to FUMO URI ../x* c. Alert type of "org.openmobilealliance.dm.firmwareupdate.update" d. If the correlator was supplied on EXEC, the correct correlator 8. The ../x*/State is one of the valid terminating states. The valid State values are enumerated in the Section for Node:x/State in [FUMO]. 9. The client device successfully performs the update inline with the expectations of the update package.
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6.8 Successful Firmware Update using Alternative Download Mechanism and EXEC on ../x*/DownloadAndUpdate node

Test Case Id	FUMO-1.0-int-008
Test Object	Client & Server device
Test Case Description	<p>The purpose of this test is to verify that -</p> <ol style="list-style-type: none"> 1. A client device supporting FUMO, downloads an update package from a DM server using Alternative Download mechanism (e.g. DLOTA). 2. The client device performs a successful firmware update on the client device using Exec on DownloadAndUpdate node 3. The client device Reports the State value successfully to the DM server

Specification Reference	[FUMO]	
SCR Reference	FWUPDATE-S-001 FWUPDATE-S-002 FWUPDATE-S-003 FWUPDATE-S-004 FWUPDATE-C-001 FWUPDATE-C-002 FWUPDATE-C-003 FWUPDATE-C-004	FWUPDATE-C-007 FWUPDATE-C-008 FWUPDATE-C-009 FWUPDATE-C-015 FWUPDATE-C-016 FWUPDATE-C-017 FWUPDATE-C-018 FWUPDATE-C-019
Preconditions	<ol style="list-style-type: none"> 1. The DM client must support FUMO 2. The DM client must support download of an update package from a DM server using Alternative Download mechanism (e.g. DLOTA) 3. The DM client must support Exec on ../x*/DownloadAndUpdate node 4. The DM client must be configured to work with a DM server 	
Test Procedure	<ol style="list-style-type: none"> 1. Perform an ADD – to create the ../x* node in the management tree, if one does not exist 2. Perform an ADD/REPLACE on node ../x*/DownloadAndUpdate/PkgURL 3. Perform an EXEC on node ../x*/DownloadAndUpdate, optionally specifying the Correlator if supported by the server 4. Upon successful receipt of Generic Alert 1226 from the client, perform a GET on node ../x*/State to verify that the State is set to a valid State 	
Pass-Criteria	<ol style="list-style-type: none"> 1. The client created a FUMO ../x* when requested by the server. ADD command returns a response of 200. 2. ADD/REPLACE command on node ../x*/DownloadAndUpdate/PkgURL returns a response of 200 3. EXEC command on node ../x*/DownloadAndUpdate returns a response of 200 or 202 (asynchronous) if the command is accepted for later processing. 4. Update package is downloaded to the device during the Exec of the DownloadAndUpdate node. 5. Generic Alert 1226 returned by the client with: <ol style="list-style-type: none"> a. Result code 200 for success b. URI equal to FUMO URI ../x* c. Alert type of “org.openmobilealliance.dm.firmwareupdate.downloadandupdate” d. If the correlator was supplied on EXEC, the correct correlator 6. The ../x*/State is one of the valid terminating states. The valid State values are enumerated in the Section for Node:x/State in [FUMO]. 7. The client device successfully performs the update inline with the 	

	expectations of the update package
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6.9 Downloading an Update Package using OMA-DM Large Object and EXEC on ../x*/Update Node

Test Case Id	FUMO-1.0-int-009	
Test Object	Client & Server device	
Test Case Description	<p>The purpose of this test is to verify that-</p> <ol style="list-style-type: none"> 1. The client device supporting FUMO, downloads an update package from a DM server using OMA-DM protocol 2. 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 ADD/REPLACE has been performed on the x*/Download/PkgURL node. 3. The client device performs a successful firmware update on the client device 4. The client device reports the State value successfully to the DM server 	
Specification Reference	[FUMO]	
SCR Reference	FWUPDATE-S-001 FWUPDATE-S-002 FWUPDATE-S-003 FWUPDATE-S-004 FWUPDATE-C-001 FWUPDATE-C-002 FWUPDATE-C-010 FWUPDATE-C-011	FWUPDATE-C-012 FWUPDATE-C-013 FWUPDATE-C-014 FWUPDATE-C-015 FWUPDATE-C-016 FWUPDATE-C-017 FWUPDATE-C-018 FWUPDATE-C-019
Preconditions	<ol style="list-style-type: none"> 1. The client device must support FUMO 2. The DM client must support download of an update package from a DM server using OMA-DM protocol 3. The DM client must support Exec on ../x*/Update node 4. The DM client must be configured to work with a DM server 	
Test Procedure	<ol style="list-style-type: none"> 1. Perform an ADD – to create the ../x* node in the management tree, if one does not exist 2. Perform an ADD/REPLACE on node ../x*/Update/PkgData. This is ADD/REPLACE with LargeObject. Verify if the command succeeded. Expected result is 200. 3. Perform an ADD/REPLACE on node ../x*/Download/PkgURL 4. Perform an EXEC on node ../x*/Update Node, optionally specifying the Correlator if supported by the server 5. Upon successful receipt of Generic Alert 1226 from the client, perform a GET on node ../x*/State to verify that the State is set to a valid State 	

Pass-Criteria	<ol style="list-style-type: none"> 1. The client created a FUMO ../x* when requested by the server. ADD command returns a response of 200. 2. The Update package is downloaded to the device i.e. ADD/REPLACE on node ../x*/Update/PkgData returns a response of 200 3. ADD/REPLACE command on node ../x*/Download/PkgURL returns 200 4. EXEC command on node ../x*/Update returns a response of 200 or 202 (asynchronous) if the command is accepted for later processing. 5. Generic Alert 1226 returned by the client with : <ol style="list-style-type: none"> a. Result code 200 for success b. URI equal to FUMO URI ../x* c. Alert type of “org.openmobilealliance.dm.firmwareupdate.update” d. If the correlator was supplied on EXEC, the correct correlator 6. The ../x*/State is one of the valid terminating states. The valid State values are enumerated in the Section Node:x/State in [FUMO]. 7. The client device successfully performs the firmware update inline with the expectations of the update package
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6.10 Failed Download due to Malformed or Bad URL

Test Case Id	FUMO-1.0-int-013	
Test Object	Client & Server device	
Test Case Description	<p>The purpose of this test is to verify that-</p> <ol style="list-style-type: none"> 1. A client device supporting FUMO, fails to download an update package due to Malformed or Bad URL 2. The client device reports the appropriate Result Code successfully to the DM server 	
Specification Reference	[FUMO]	
SCR Reference	FWUPDATE-S-001 FWUPDATE-S-002 FWUPDATE-S-003 FWUPDATE-S-004 FWUPDATE-C-001 FWUPDATE-C-002 FWUPDATE-C-003 FWUPDATE-C-007	FWUPDATE-C-008 FWUPDATE-C-009 FWUPDATE-C-015 FWUPDATE-C-016 FWUPDATE-C-017 FWUPDATE-C-018 FWUPDATE-C-019
Preconditions	<ol style="list-style-type: none"> 1. The DM client must support FUMO 	

	<ol style="list-style-type: none"> 2. The DM client must support downloading of an update package for firmware update based on Alternate Download Mechanism (e.g. DLOTA) 3. The DM client must be configured to work with a DM server.
Test Procedure	<ol style="list-style-type: none"> 1. Perform an ADD to create the ../x* node in the management tree, if one does not exist 2. Perform an ADD/REPLACE on node ../x*/DownloadAndUpdate/PkgURL to show a blank PkgURL 3. Perform an EXEC on node ../x*/DownloadAndUpdate, optionally specifying the Correlator if supported by the server 4. Verify that the client fails to download the Update package 5. Upon successful receipt of Generic Alert 1226 from the client, perform a GET on node ../x*/State to verify that the State is set to a valid State
Pass-Criteria	<ol style="list-style-type: none"> 1. The client created a FUMO ../x* when requested by the server. ADD command returns a response of 200. 2. ADD/REPLACE command on node ../x*/DownloadAndUpdate/PkgURL returns a response of 200 3. EXEC command on node ../x*/DownloadAndUpdate returns response of 200 or 202 (asynchronous) if the command is accepted for later processing OR an error 4. The client fails to download the Update package and a GenericAlert 1226 is returned by the client with: <ol style="list-style-type: none"> a. Result code 411 b. URI equal to FUMO URI ../x* c. Alert type of “org.openmobilealliance.dm.firmwareupdate.downloadandupdate” d. If the correlator was supplied on EXEC, the correct correlator 5. The ../x*/State is one of the valid terminating states. The valid State values are enumerated in the Section for Node:x/State in [FUMO].

6.11 Failed download due to missing Update packages

Test Case Id	FUMO-1.0-int-014
Test Object	Client & Server device
Test Case Description	<p>The purpose of this test is to verify that-</p> <ol style="list-style-type: none"> 1. 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. 2. The client device reports the Result Code successfully to the DM server

Specification Reference	[FUMO]	
SCR Reference	FWUPDATE-S-001 FWUPDATE-S-002 FWUPDATE-S-003 FWUPDATE-S-004 FWUPDATE-C-001 FWUPDATE-C-002 FWUPDATE-C-003 FWUPDATE-C-007	FWUPDATE-C-008 FWUPDATE-C-009 FWUPDATE-C-015 FWUPDATE-C-016 FWUPDATE-C-017 FWUPDATE-C-018 FWUPDATE-C-019
Preconditions	<ol style="list-style-type: none"> 1. The DM client must support FUMO 2. The DM client must support downloading of an update package for firmware update based on Alternate Download Mechanism (e.g. DLOTA) 3. The DM client must be configured to work with a DM server 	
Test Procedure	<ol style="list-style-type: none"> 1. Perform an ADD to create the ../x* node in the management tree, if one does not exist 2. Perform an ADD/REPLACE on node ../x*/DownloadAndUpdate/PkgURL 3. Ensure that the Update package does not exist at the PkgURL provided 4. Perform an EXEC on node ../x*/DownloadAndUpdate, optionally specifying the Correlator if supported by the server 5. Verify that the client fails to download the Update package 6. Upon successful receipt of Generic Alert 1226 from the client, perform a GET on node ../x*/State to verify that the State is set to a valid State 	
Pass-Criteria	<ol style="list-style-type: none"> 1. The client created a FUMO ../x* when requested by the server. ADD command returns a response of 200. 2. ADD/REPLACE command on node ../x*/DownloadAndUpdate/PkgURL returns a response of 200 3. EXEC command on node ../x*/DownloadAndUpdate returns response of 200 or 202 (asynchronous) if the command is accepted for later processing OR an error 4. The client fails to download the Update package and a GenericAlert 1226 is returned by the client with: <ol style="list-style-type: none"> a. Appropriate Result Code b. URI equal to FUMO URI ../x* c. Alert type of “org.openmobilealliance.dm.firmwareupdate.download” or “org.openmobilealliance.dm.firmwareupdate.downloadandupdate” d. If the correlator was supplied on EXEC, the correct correlator 5. The ../x*/State is one of the valid terminating states. The valid State values are enumerated in the Section for Node:x/State in [FUMO]. 	

6.12 Failure due to Incomplete Download – OMA-DM protocol

Test Case Id	FUMO-1.0-int-015	
Test Object	Client & Server device	
Test Case Description	<p>The purpose of this test is to verify-</p> <ol style="list-style-type: none"> 1. Client behaviour when the download of an Update package using OMA-DM protocol is interrupted. 2. The client device reports the appropriate Result Code successfully to the DM server 	
Specification Reference	[FUMO]	
SCR Reference	FWUPDATE-S-001 FWUPDATE-S-002 FWUPDATE-S-003 FWUPDATE-S-004 FWUPDATE-C-001 FWUPDATE-C-002 FWUPDATE-C-010 FWUPDATE-C-011	FWUPDATE-C-012 FWUPDATE-C-013 FWUPDATE-C-014 FWUPDATE-C-015 FWUPDATE-C-016 FWUPDATE-C-017 FWUPDATE-C-018 FWUPDATE-C-019
Preconditions	<ol style="list-style-type: none"> 1. The DM client must support FUMO 2. The DM client supports OMA-DM protocol for downloading the update package. 3. The DM client must be configured to work with a DM server 4. The DM client supports a mechanism to stop download of an Update package 	
Test Procedure	<ol style="list-style-type: none"> 1. Perform an ADD to create the ../x* node in the management tree, if one does not exist 2. Perform an ADD/REPLACE on node ../x*/Update/PkgData 3. Stop the download before the entire package is received. This step assumes that there exists a mechanism to stop downloads prematurely – such as a management screen that displays active downloads. 4. Verify that the client aborts the download 5. Perform a GET on node ../x*/State to verify that the State is set to a valid State 	
Pass-Criteria	<ol style="list-style-type: none"> 1. The client created a FUMO ../x* when requested by the server. ADD command returns a response of 200. 2. ADD/REPLACE command on node ../x*/Update/PkgData returns an error 3. The client fails to download the Update package 4. The ../x*/State is one of the valid terminating states. The valid State values are enumerated in the Section for Node:x/State in [FUMO]. 	

6.13 Failure due to Incomplete Download – Alternate Download

Test Case Id	FUMO-1.0-int-016	
Test Object	Client & Server device	
Test Case Description	<p>The purpose of this test is to verify-</p> <ol style="list-style-type: none"> 1. Client behaviour when the download of an Update package using Alternate Download Mechanism (e.g. DLOTA) is interrupted. 2. The client device reports the appropriate Result Code successfully to the DM server 	
Specification Reference	[FUMO]	
SCR Reference	FWUPDATE-S-001 FWUPDATE-S-002 FWUPDATE-S-003 FWUPDATE-S-004 FWUPDATE-C-001 FWUPDATE-C-002 FWUPDATE-C-003 FWUPDATE-C-007	FWUPDATE-C-008 FWUPDATE-C-009 FWUPDATE-C-015 FWUPDATE-C-016 FWUPDATE-C-017 FWUPDATE-C-018 FWUPDATE-C-019
Preconditions	<ol style="list-style-type: none"> 1. The DM client must support FUMO 2. The DM client supports an Alternate Download Mechanism (e.g. DLOTA) for downloading the update package 3. The DM client must be configured to work with a DM server 4. The DM client supports a mechanism to stop download of an Update package 	
Test Procedure	<ol style="list-style-type: none"> 1. Perform an ADD to create the ../x* node in the management tree, if one does not exist 2. Perform an ADD/REPLACE on node ../x*/DownloadAndUpdate/PkgURL 3. Perform an EXEC on node ../x*/DownloadAndUpdate 4. Stop the download before the entire package is received. This step assumes that there exists a mechanism to stop downloads prematurely – such as a management screen that displays active downloads. 5. Verify that the client aborts the download and sends an appropriate Result Code to the server 6. Upon successful receipt of Generic Alert 1226 from the client, perform a GET on node ../x*/State to verify that the State is set to a valid State 	

Pass-Criteria	<ol style="list-style-type: none"> 1. The client created a FUMO ../x* when requested by the server. ADD command returns a response of 200. 2. ADD/REPLACE command on node ../x*/DownloadAndUpdate/PkgURL returns a response of 200 3. EXEC command on node ../x*/DownloadAndUpdate returns response of 200 or 202 (asynchronous) if the command is accepted for later processing OR an error 4. The client fails to download the Update package and a GenericAlert 1226 is returned by the client with: <ol style="list-style-type: none"> a. Appropriate Result Code b. URI equal to FUMO URI ../x* c. Alert type of “org.openmobilealliance.dm.firmwareupdate.downloadandupdate” d. If the correlator was supplied on EXEC, the correct correlator 5. The ../x*/State is one of the valid terminating states. The valid State values are enumerated in the Section for Node:x/State in [FUMO].
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6.14 Failure due to Corrupted Update Package Downloaded

Test Case Id	FUMO-1.0-int-017	
Test Object	Client & Server device	
Test Case Description	<p>The purpose of this test is to verify-</p> <ol style="list-style-type: none"> 1. Client behaviour when Update package is corrupted 2. The client device reports the appropriate Result Code successfully to the DM server 	
Specification Reference	[FUMO]	
SCR Reference	FWUPDATE-S-001 FWUPDATE-S-002 FWUPDATE-S-003 FWUPDATE-S-004 FWUPDATE-C-001 FWUPDATE-C-002 FWUPDATE-C-003 FWUPDATE-C-007	FWUPDATE-C-008 FWUPDATE-C-009 FWUPDATE-C-015 FWUPDATE-C-016 FWUPDATE-C-017 FWUPDATE-C-018 FWUPDATE-C-019
Preconditions	<ol style="list-style-type: none"> 1. The DM client must support FUMO 2. The DM client supports a Download Mechanism for downloading the update package 3. The DM client must be configured to work with a DM server 4. A corrupted update package is available from the client implementor or 	

	OEM
Test Procedure	<ol style="list-style-type: none"> 1. Perform an ADD to create the ../x* node in the management tree, if one does not exist 2. Ensure that the update package is corrupted. For example, a few bytes may be changed in the update package before it is downloaded. 3. Download the corrupted package from the server to the device 4. Verify that the update package is downloaded successfully 5. Perform an Update on the device 6. Verify that the Update itself fails. 7. Verify that the client sends the appropriate Result Code to the DM server 8. Upon successful receipt of Generic Alert 1226 from the client, perform a GET on node ../x*/State to verify that the State is set to a valid State
Pass-Criteria	<ol style="list-style-type: none"> 1. The client created a FUMO ../x* when requested by the server. ADD command returns a response of 200. 2. The client successfully downloads the Update package but the Update fails because of the package being corrupted. 3. GenericAlert 1226 is returned by the client with: <ol style="list-style-type: none"> a. Appropriate Result Code (402) b. URI equal to FUMO URI ../x* c. Appropriate Alert type is returned . d. If the correlator was supplied on EXEC, the correct correlator 4. The ../x*/State is one of the valid terminating states. The valid State values are enumerated in the Section for Node:x/State in [FUMO].

6.15 Client Initiated Firmware Update – Device Initiated Alert

Test Case Id	FUMO-1.0-int-018
Test Object	Client & Server device
Test Case Description	<p>The purpose of this test is to verify -</p> <ol style="list-style-type: none"> 1. A client can schedule a query to the server to check if a firmware update is available 2. A client device sends a Generic Alert to the server with appropriate fields and information 3. A server device responds to a Generic Alert with correct Status code
Specification Reference	[FUMO]

SCR Reference	FWUPDATE-C-021 FWUPDATE-C-022 FWUPDATE-C-023	FWUPDATE-C-024 FWUPDATE-C-025
Preconditions	<ol style="list-style-type: none"> 1. The client device must support FUMO 2. The client must support querying the server for a firmware update 3. The DM client must support sending Generic Alert 4. The DM client must be configured to work with a DM server 	
Test Procedure	<ol style="list-style-type: none"> 1. Perform an ADD to create the ../x* node in the management tree, if one does not exist 2. Using appropriate methods in the client, query the server for a firmware update for the device. 	
Pass-Criteria	<ol style="list-style-type: none"> 1. The client created a FUMO ../x* when requested by the server. ADD command returns a response of 200. 2. The device initiates a query to the server for a firmware update using Generic Alert message with the alert type: <i>“org.openmobilealliance.dm.firmwareupdate.devicerequest”</i> 3. Verify the URI, if specified, in the Generic Alert points to the ../x* node, representing a single firmware update management object in the tree. 4. Verify Data element is used and set to 1226 in the Alert 5. Verify the Server responds with Status 200 or 202 to the Generic Alert 	

6.16 Client Initiated Firmware Update – User Initiated Alert

Test Case Id	FUMO-1.0-int-019	
Test Object	Client & Server device	
Test Case Description	<p>The purpose of this test is to verify -</p> <ol style="list-style-type: none"> 1. A user can initiate a query to check if a firmware update is available 2. A client device sends a Generic Alert to the server with appropriate fields and information. 3. A server device responds to a Generic Alert with correct Status code 	
Specification Reference	[FUMO]	
SCR Reference	FWUPDATE-C-021 FWUPDATE-C-022 FWUPDATE-C-023	FWUPDATE-C-024 FWUPDATE-C-025
Preconditions	<ol style="list-style-type: none"> 1. The client device must support FUMO 2. The client must support user initiation of a firmware update 3. The DM client must support sending Generic Alert 4. The DM client must be configured to work with a DM server 	

Test Procedure	<ol style="list-style-type: none">1. Perform an ADD to create the ../x* node in the management tree, if one does not exist2. Using appropriate methods in the client, user shall initiate a query to the server for a firmware update for the device
Pass-Criteria	<ol style="list-style-type: none">1. The client created a FUMO ../x* when requested by the server. ADD command returns a response of 200.2. The device initiates a query to the server for a firmware update using Generic Alert message with the alert type: <i>“org.openmobilealliance.dm.firmwareupdate.userrequest”</i>.3. Verify the URI, if specified, in the Generic Alert points to the ../x* node, representing a single firmware update management object in the tree.4. Verify Data element is used and set to 1226 in the Alert.5. Verify the Server responds with Status 200 or 202 to the Generic Alert

Appendix A. Change History

(Informative)

A.1 Approved Version History

Reference	Date	Description
n/a	n/a	No prior version –or- No previous version within OMA

A.2 Draft/Candidate Version 1.0 History

Document Identifier	Date	Sections	Description
Draft Versions OMA-ETS-FUMO-V1_0	01 Feb 2006	N/A	Baseline created based on OMA-IOP-PRC-2006-0004R01-FUMO-Draft-ETS
	08 Feb 2006	Section 6	Class 0 change: Document re-formatted to delete Comments previously noted and resolved.
	26 Apr 2006	Section 6	Added Client Initiated Firmware Update test cases
	14 Jun 2006	All	Updates based on FUMO Consistency Review (OMA-CONRR-FUMO-V1_0-20060605-I)
	12 Jul 2006	Sections 6.1, 6.2, 6.3 and Appendix B	Removed “Location of DDF” test case as there is no requirement for the server to Changed MO identifier to urn:oma:mo:fumo:1.0 in Sections 6.2, 6.3 and 6.4 Updated SCR table to reflect TS Updated TestCase numbers Updated TestCase column in Appendix B Removed version number for IOPPROC in References
	13 Jul 2006	n/a	Agreed in IOP
Candidate Versions OMA-ETS-FUMO-V1_0	01 Aug 2006	n/a	Status changed to Candidate, TP R&A 2006-07-19 to 2006-08-01 OMA-TP-2006-0280-INP-OMA-ETS-FUMO-V1_0_for_Candidate_Approval
	24 Aug 2006	All	Incorporated CRs: OMA-IOP-PRC-2006-0100 OMA-IOP-PRC-2006-0102 as per OMA-IOP-PRC-2006-104-Minutes Notice sent to TP of minor update OMA-TP-2006-0302-INP_OMA_ETS_FUMO_V1_0_for_Notification
Draft Version OMA-ETS-FUMO-V1_0	20 Oct 2006	6.1, 6.10, 6.11, 6.12, 6.13, 6.14, 6.16 and 6.17	Incorporated CRs: OMA-IOP-PRC-2006-0107 OMA-IOP-PRC-2006-0109R01
Candidate Versions OMA-ETS-FUMO-V1_0	14 Nov 2006	n/a	Status changed to Candidate, TP R&A 2006-11-01 to 2006-11-14 OMA-TP-2006-0404-INP_OMA_ETS_FUMO_V1_0_for_reapproval_as_candidate
	15 Dec 2006	6.14	Incorporated CR: OMA-IOP-PRC-2006-0143R01

Appendix B. SCR mapping to Test Case

B.1 SCR for FUMO Tree Structure

Item	Function	Reference	Status	Requirement	Test Case
FWUPDATE-T-001	Use of urn:oma:mo:oma-fumo:1.0 for the node type for the <x> node	Section 5	M		FUMO-1.0-int-001 FUMO-1.0-int-002 FUMO-1.0-int-003 FUMO-1.0-int-004
FWUPDATE-T-002	Support for x/Download	Section 5.1.4	O	FWUPDATE-T-010	FUMO-1.0-int-001 FUMO-1.0-int-002
FWUPDATE-T-003	Support for x/DownloadAndUpdate	Section 5.1.8	O	FWUPDATE-T-009	FUMO-1.0-int-001 FUMO-1.0-int-004
FWUPDATE-T-004	Support for x/Update	Section 5.1.6	O		FUMO-1.0-int-001 FUMO-1.0-int-003
FWUPDATE-T-005	Support for PkgName	Section 5.1.2	O		FUMO-1.0-int-001
FWUPDATE-T-006	Support for PkgVersion	Section 5.1.3	O		FUMO-1.0-int-001
FWUPDATE-T-007	Support for Ext	Section 5.1.11	O		FUMO-1.0-int-001
FWUPDATE-T-008	Support for State	Section 5.1.10	M		FUMO-1.0-int-001 FUMO-1.0-int-005
FWUPDATE-T-009	Support for x/DownloadAndUpdate/PkgURL	Section 5.1.9	O		FUMO-1.0-int-004
FWUPDATE-T-010	Support for x/Download/PkgURL	Section 5.1.5	O		FUMO-1.0-int-002
FWUPDATE-T-011	Support for x/Update/PkgData	Section 5.1.7	O		FUMO-1.0-int-003

B.2 SCR for FUMO Client

Item	Function	Reference	Status	Requirement	Test Case
FWUPDATE-C-001	Support for Package Download Operation	Section 6.3	M	FWUPDATE-C-003 OR FWUPDATE-C-010	FUMO-1.0-int-006 FUMO-1.0-int-007 FUMO-1.0-int-008 FUMO-1.0-int-009 FUMO-1.0-int-013 FUMO-1.0-int-014 FUMO-1.0-int-015 FUMO-1.0-int-016 FUMO-1.0-int-017
FWUPDATE-C-002	Support for Exec	Section 6.3	M		FUMO-1.0-int-006 FUMO-1.0-int-007 FUMO-1.0-int-008 FUMO-1.0-int-009 FUMO-1.0-int-013 FUMO-1.0-int-014 FUMO-1.0-int-015 FUMO-1.0-int-016 FUMO-1.0-int-017
FWUPDATE-C-003	Support for Alternative Download of Update Package	Section 6.3	O	FWUPDATE-C-004 OR FWUPDATE-C-007	FUMO-1.0-int-007 FUMO-1.0-int-008 FUMO-1.0-int-013 FUMO-1.0-int-014

Item	Function	Reference	Status	Requirement	TestCase
					FUMO-1.0-int-016 FUMO-1.0-int-017
FWUPDATE-C-004	Support for Exec on x/Download	Section 6.1.1	O	FWUPDATE-T-002 AND (FWUPDATE-C-005 OR FWUPDATE-C-006)	FUMO-1.0-int-007 FUMO-1.0-int-008
FWUPDATE-C-005	Support for Add of x/Download/PkgURL	Section 5.1.5	O		FUMO-1.0-int-007
FWUPDATE-C-006	Support for Replace of x/Download/PkgURL	Section 5.1.5	O		FUMO-1.0-int-007
FWUPDATE-C-007	Support for Exec on x/DownloadAndUpdate	Section 5.1.8	O	FWUPDATE-T-003 AND (FWUPDATE-C-008 OR FWUPDATE-C-009)	FUMO-1.0-int-008 FUMO-1.0-int-013 FUMO-1.0-int-014 FUMO-1.0-int-016 FUMO-1.0-int-017
FWUPDATE-C-008	Support for Add of x/DownloadAndUpdate/PkgURL	Section 5.1.9	O		FUMO-1.0-int-008 FUMO-1.0-int-013 FUMO-1.0-int-014 FUMO-1.0-int-016 FUMO-1.0-int-017
FWUPDATE-C-009	Support for Replace of x/DownloadAndUpdate/PkgURL	Section 5.1.9	O		FUMO-1.0-int-008 FUMO-1.0-int-013 FUMO-1.0-int-014 FUMO-1.0-int-016 FUMO-1.0-int-017
FWUPDATE-C-010	Support for OMA DM Based Package Download (large object transfer)	Section 6.3	O	FWUPDATE-T-004 AND (FWUPDATE-C-011 OR FWUPDATE-C-012)	FUMO-1.0-int-006 FUMO-1.0-int-009 FUMO-1.0-int-015
FWUPDATE-C-011	Support for Add of x/Update/PkgData	Section 5.1.7	O		FUMO-1.0-int-006 FUMO-1.0-int-007 FUMO-1.0-int-009 FUMO-1.0-int-015
FWUPDATE-C-012	Support for Replace of x/Update/PkgData	Section 5.1.7	O		FUMO-1.0-int-006 FUMO-1.0-int-007 FUMO-1.0-int-009 FUMO-1.0-int-015
FWUPDATE-C-013	Support for Update Operation	Section 6.1.2, 5.1.6	M	FWUPDATE-C-007 OR FWUPDATE-C-014	FUMO-1.0-int-006 FUMO-1.0-int-007 FUMO-1.0-int-009 FUMO-1.0-int-015
FWUPDATE-C-014	Support for Exec on x/Update	Section 5.1.6	O	FWUPDATE-C-004 OR FWUPDATE-C-010	FUMO-1.0-int-006 FUMO-1.0-int-007 FUMO-1.0-int-009 FUMO-1.0-int-015
FWUPDATE-C-015	Support for Generic Alert for result reporting	Section 6.2	M		FUMO-1.0-int-006 FUMO-1.0-int-007 FUMO-1.0-int-008 FUMO-1.0-int-009 FUMO-1.0-int-013 FUMO-1.0-int-014 FUMO-1.0-int-015 FUMO-1.0-int-016 FUMO-1.0-int-017
FWUPDATE-C-016	Use FUMO URI for result reporting	Section 6.2.1	M		FUMO-1.0-int-006 FUMO-1.0-int-007 FUMO-1.0-int-008 FUMO-1.0-int-009

Item	Function	Reference	Status	Requirement	TestCase
					FUMO-1.0-int-013 FUMO-1.0-int-014 FUMO-1.0-int-015 FUMO-1.0-int-016 FUMO-1.0-int-017
FWUPDATE-C-017	Use predefined result codes for result reporting	Section 6.2.4	M		FUMO-1.0-int-001 FUMO-1.0-int-002 FUMO-1.0-int-003 FUMO-1.0-int-004 FUMO-1.0-int-005 FUMO-1.0-int-006 FUMO-1.0-int-007 FUMO-1.0-int-008 FUMO-1.0-int-009 FUMO-1.0-int-013 FUMO-1.0-int-014 FUMO-1.0-int-015 FUMO-1.0-int-016 FUMO-1.0-int-017
FWUPDATE-C-018	Use predefined alert types for result reporting	Section 6.2.2	M		FUMO-1.0-int-006 FUMO-1.0-int-007 FUMO-1.0-int-008 FUMO-1.0-int-009 FUMO-1.0-int-013 FUMO-1.0-int-014 FUMO-1.0-int-015 FUMO-1.0-int-016 FUMO-1.0-int-017
FWUPDATE-C-019	Support for Correlator	Section 6.2.3	M		FUMO-1.0-int-006 FUMO-1.0-int-007 FUMO-1.0-int-008 FUMO-1.0-int-009 FUMO-1.0-int-013 FUMO-1.0-int-014 FUMO-1.0-int-015 FUMO-1.0-int-016 FUMO-1.0-int-017
FWUPDATE-C-020	Use alert severities for result reporting	Section 6.2	O		
FWUPDATE-C-021	Support for Client Initiated Firmware Update	Section 7	O	FWUPDATE-C-022 AND FWUPDATE-C-023 AND FWUPDATE-C-025 AND FWUPDATE-C-026	FUMO-1.0-int-018 FUMO-1.0-int-019
FWUPDATE-C-022	Support for Generic Alert for Client Initiated Firmware Update	Section 7.1.1	O		FUMO-1.0-int-018 FUMO-1.0-int-019
FWUPDATE-C-023	Use of the predefined Alert Types for Client Initiated Firmware Update	Section 7.1.2	O		FUMO-1.0-int-018 FUMO-1.0-int-019
FWUPDATE-C-024	Use of the FUMO URI	Section 7.1.3	O		FUMO-1.0-int-018 FUMO-1.0-int-019
FWUPDATE-C-025	Use of String as Data Type	Section 7.1.4	O		FUMO-1.0-int-018 FUMO-1.0-int-019
FWUPDATE-C-026	Use of User Interaction Alert prior to update	Section 6.1	O		DeviceManagement-v1.2-int-021 DeviceManagement-v1.2-int-022 DeviceManagement-v1.2-int-023

Item	Function	Reference	Status	Requirement	TestCase
					DeviceManagement-v1.2-int-024 DeviceManagement-v1.2-int-025

B.3 SCR for FUMO Server

Item	Function	Reference	Status	Requirement	Test Case
FWUPDATE-S-001	Support for the Firmware Update Management Object	Section 5	M		FUMO-1.0-int-001 FUMO-1.0-int-002 FUMO-1.0-int-003 FUMO-1.0-int-004 FUMO-1.0-int-005 FUMO-1.0-int-006 FUMO-1.0-int-007 FUMO-1.0-int-008 FUMO-1.0-int-009 FUMO-1.0-int-013 FUMO-1.0-int-014 FUMO-1.0-int-015 FUMO-1.0-int-016 FUMO-1.0-int-017
FWUPDATE-S-002	Support for receiving Generic Alert	Section 6.2	M		FUMO-1.0-int-006 FUMO-1.0-int-007 FUMO-1.0-int-008 FUMO-1.0-int-009 FUMO-1.0-int-013 FUMO-1.0-int-014 FUMO-1.0-int-015 FUMO-1.0-int-016 FUMO-1.0-int-017
FWUPDATE-S-003	Support for Correlator	Section 6.2.3	O		FUMO-1.0-int-006 FUMO-1.0-int-007 FUMO-1.0-int-008 FUMO-1.0-int-009 FUMO-1.0-int-013 FUMO-1.0-int-014 FUMO-1.0-int-015 FUMO-1.0-int-016 FUMO-1.0-int-017
FWUPDATE-S-004	Support for Exec	Section 6.3	M		FUMO-1.0-int-006 FUMO-1.0-int-007 FUMO-1.0-int-008 FUMO-1.0-int-009 FUMO-1.0-int-013 FUMO-1.0-int-014 FUMO-1.0-int-015 FUMO-1.0-int-016 FUMO-1.0-int-017