Enabler Release Definition for OMA Device Management

Candidate Version 1.3 – 07 Dec 2010

Open Mobile Alliance

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Contents

Figures

No table of figures entries found.

Tables

1. Scope

The scope of this document is limited to the Enabler Release Definition of Device Management according to OMA Release process and the Enabler Release specification baseline listed in section 5. The OMA DM v1.3 specifications are based on the OMA Device Management (DM) v1.2.1 specifications with various enhancements.

2. References

2.1 Normative References

[DevDetailDDF]	"OMA Device Management Device Detailed Information Managed Object DDF, Version 1.3". Open Mobile Alliance™. OMA-SUP-MO_DM_DevDetail-V1_3. URL:http:www.openmobilealliance.org/
[DevInfoDDF]	"OMA Device Management Device Information Managed Object DDF, Version 1.3". Open Mobile Alliance™. OMA-SUP-MO_DM_DevInfo-V1_3. URL:http:www.openmobilealliance.org/
[DMAccDDF]	"OMA Device Management Account Managed Object DDF, Version 1.3". Open Mobile Alliance™. OMA-SUP-MO_DM_DMAcc-V1_3. URL:http:www.openmobilealliance.org/
[DMBOOT]	"OMA Device Management Bootstrap, Version 1.3". Open Mobile Alliance™. OMA-TS-DM_Bootstrap-V1_3. URL:http:www.openmobilealliance.org/
[DMDDFDTD]	"OMA Device Management Device Description Framework DTD, Version 1.3". Open Mobile Alliance™. OMA-SUP-dtd_dm_ddf-v1_3. URL:http:www.openmobilealliance.org/
[DMDICT]	"OMA Device Management Dictionary, Version 1.0". Open Mobile Alliance™. OMA-SUP-DM_Dictionary-v1_0. URL:http:www.openmobilealliance.org/
[DMNOTI]	"OMA Device Management Notification Initiated Session, Version 1.3". Open Mobile Alliance™. OMA-DM_Notification-V1_3. URL:http:www.openmobilealliance.org/
[DMPRO]	"OMA Device Management Protocol, Version 1.3". Open Mobile Alliance™. OMA-TS-DM_Protocol-V1_3**.** URL:http:www.openmobilealliance.org/
[DMRD]	"OMA Device Management Requirements Document, Version 1.3". Open Mobile Alliance™. OMA-RD-DM-V1_3. URL:http://www.openmobilealliance.org
[DMRD12]	"OMA Device Management Requirements Document, Version 1.2". Open Mobile Alliance™. OMA-RD-DM-V1_2. URL:http://www.openmobilealliance.org
[DMREPU]	"OMA Device Management Representation Protocol, Version 1.3". Open Mobile Alliance™. OMA-TS-DM_RepPro-V1_3. URL:http://www.openmobilealliance.org
[DMSEC]	"OMA Device Management Security, Version 1.3". Open Mobile Alliance™. OMA-TS-DM_Security-V1_3. URL:http:www.openmobilealliance.org/
[DMSESS]	"OMA Device Management Sessionless Message, Version 1.3", Open Mobile Alliance™. OMA-TS-DM_Sessionless-V1_3. URL:http:www.openmobilealliance.org/
[DMSTDOBJ]	"OMA Device Management Standardized Objects, Version 1.3". Open Mobile Alliance™. OMA-TS-DM_StdObj-V1_3. URL:http:www.openmobilealliance.org/
[DMTND]	"OMA Device Management Tree and Description, Version 1.3". Open Mobile Alliance™. OMA-TS-DM_TND-V1_3. URL:http:www.openmobilealliance.org/
[DMTNDS]	"OMA Device Management Tree and Description Serialization, Version 1.3". Open Mobile Alliance™. OMA-TS-DM_TNDS-V1_3. URL:http:www.openmobilealliance.org/
[HTTPBinding]	"OMA Device Management HTTP Binding Specification", Open Mobile Alliance™, OMA-TS-DM_HTTPBinding-V1_3,

	URL:http://www.openmobilealliance.org/
[IOPPROC]	"OMA Interoperability Policy and Process", Version 1.9, Open Mobile Alliance™, OMA-IOP-Process-V1_9, URL:http:www.openmobilealliance.org/
[Meta]	"OMA Device Management Meta Information", Open Mobile Alliance™, OMA-TS-DM_DM_MetaInfo-V1_3, URL:http:www.openmobilealliance.org/
[MetaDTD]	"OMA Device Management Meta Information, Document Type Definition", Open Mobile Alliance™,OMA-TS-DM_MetaInfo_DTD-V1_3, URL:http:www.openmobilealliance.org/
[OBEXBinding]	"OMA Device Management OBEX Binding Specification", Open Mobile Alliance™, OMA-TS-DM_OBEXBinding-V1_3, URL:http://www.openmobilealliance.org/
[PushBinding]	"OMA Device Management Push Binding Specification", Open Mobile Alliance™, OMA-TS-DM_PushBinding-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
[WSPBinding]	"OMA Device Management WSP Binding Specification", Open Mobile Alliance™, OMA-TS-DM_WSPBinding-V1_3, URL: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" and "Introduction", are normative, unless they are explicitly indicated to be informative.

The formal notation convention used in sections 7 and 8 to formally express the structure and internal dependencies between specifications in the Enabler Release specification baseline is detailed in [IOPPROC].

3.2 Definitions

Device Management	Management of the Device configuration and other managed objects of Devices from the point of view of the various Management Authorities. Device Management includes, but is not restricted to setting initial configuration information in Devices, subsequent updates of persistent information in Devices, retrieval of management information from Devices and processing events and alarms generated by Devices.
Enabler Release	Collection of specifications that combined together form an enabler for a service area, e.g. a download enabler, a browsing enabler, a messaging enabler, a location enabler, etc. The specifications that are forming an enabler should combined fulfill a number of related market requirements.
Minimum Functionality Description	Description of the guaranteed features and functionality that will be enabled by implementing the minimum mandatory part of the Enabler Release.

3.3 Abbreviations

DM	Device Management
DTD	Document Type Definition
ERDEF	Enabler Requirement Definition
ERELD	Enabler Release Definition
HTTP	Hypertext Transfer Protocol
MIME	Multipurpose Internet Mail Extension
OBEX	Object Exchange protocol
OMA	Open Mobile Alliance
RD	Requirements Document
SCR	Static Conformance Requirements
SyncML	Synchronization Mark-up Language
WAP	Wireless Application Protocol
WSP	Wireless Session Protocol
XML	Extensible Mark-up Language

4. Release Version Overview

This section is informative. It describes the functionality that is delivered with the OMA Device Management specifications and their internal mandatory requirements.

The OMA DM specifications define the protocols and mechanisms for how configuration parameters can be delivered to an OMA client from an OMA DM server that is part of the overall architecture. The mandatory functionality defines a set of commands used in the DM protocol for various management procedures as well as needed security level for management session. Mandatory management tree is used as server interface to the device, which includes several mandatory management objects that are providing basic device management functionality.

The optional functionality covers several additional commands in DM protocol. Also, support for notification initiated session and bootstrapping is recommended, but optional functionality.

This document outlines the Enabler Release Definition for DM and the respective conformance requirements for client and server implementations claiming compliance to the Open Mobile Alliance DM v1.3 specifications.

Device management is the generic term used for technology that allows third parties to carry out the difficult procedures of configuring mobile devices on behalf of the end user (customer). Third parties would typically be wireless operators, service providers or corporate information management departments.

Through device management, an external party can remotely set parameters, conduct troubleshooting servicing of terminals, install or upgrade software. In broad terms, device management consists of three parts:

- Protocol and mechanism: The protocol used between a management server and a mobile device

- Data model: The data made available for remote manipulation, for example browser and mail settings

- Policy: The policy decides who can manipulate a particular parameter, or update a particular object in the device

In a wireless environment, the crucial element for device management protocol is the need to efficiently and effectively address the characteristics of mobile devices including low bandwidth and high latency.

4.1 Version 1.1.2 Functionality

DM 1.0 and 1.1 were completed under the auspices of the SyncML Initiative. DM 1.1.2 was a re-release of the same basic enabler under the OMA auspices. DM 1.1.2 provided basic remote device management capabilities for writing and reading device settings. The enabler strongly depended upon Client Provisioning for initial provisioning for this release.

4.2 Version 1.2 Functionality

DM 1.2 expanded on DM 1.1 by increasing security requirements, providing bootstrap capabilities that complement Client Provisioning capabilities, Generic Alert, and the ability to provision and read entire management objects. New node formats (such as Date, Time, etc) were added. Security functionality was significantly improved – XML encryption was added, and TLS/SSL was mandated for HTTP. Many minor improvements to the specification were also included.

4.2.1 Version 1.2.1 Functionality

DM 1.2.1 is a bug-fix release that removes most of the remaining ambiguities in the specification. No normative changes were made.

4.3 Version 1.3 Functionality

The DM V1.3 Enabler supports the following additional functionality:

- Sessionless DM

- Support for rich information in notification message including expiration, reason for session, etc.

- SIP Push and HTTP Push binding for DM Notification

- Enhancement on existing bootstrap mechanism in DM 1.2

- Support Client to request bootstrap using HTTPS GET

- Clarification regarding Inbox and TNDS Usage

- Support for the discovery of optional DM features supported by the DM client

- XML Signature and XML Encryption as additional integrity and confidentiality mechanisms respectively for DM messages

- Mandating support for TLS 1.1 and recommending support for TLS 1.2 for HTTP Binding

- Relative URI based addressing

- Enhanced DM structural query

- Indication of the roaming status and bearer for the current DM session

The DM V1.3 enabler merged the OMA SyncML Common V1.2 into its own release.

5. Document Listing for Device Management 1.3

This section is normative.

Doc Ref	Permanent Document Reference	Description
Requirement Document		
[DMRD]	OMA-RD-DM-V1_3- 20101207-C	Requirement Document for DM 1.3 Enabler
[DMRD12]	OMA-RD-DM-V1_2-20070209-A	Requirement Document for DM 1.2 Enabler
Architecture Document		
[DMAD]	OMA-AD-DM-V1_3-20101207-C	Architecture Document for DM 1.3 Enabler
Technical Specifications		
[DMBOOT]	OMA-TS-DM_Bootstrap-V1_3- 20101207-C	OMA Device Management Bootstrap
[DMNOTI]	OMA-TS-DM_ Notification-V1_3-20101207-C	OMA Device Management Notification Initiated Session
[DMPRO]	OMA-TS-DM_Protocol-V1_3-20101207-C	OMA Device Management Protocol
[DMREPU]	OMA-TS-DM_RepPro-V1_3-20101207-C	OMA Device Management Representation Protocol
[DMSEC]	OMA-TS-DM_Security-V1_3-20101207-C	OMA Device Management Security
[DMSESS]	OMA-TS-DM_Sessionless-V1_3-20101207-C	OMA Device Management Sessionless Message
[DMSTDOBJ]	OMA-TS-DM_StdObj-V1_3-20101207-C	OMA Device Management Standardized Objects
[DMTND]	OMA-TS-DM_TND-V1_3-20101207-C	OMA Device Management Tree and Description
[DMTNDS]	OMA-TS-DM_TNDS-V1_3-20101207-C	OMA Device Management Tree and Description Serialization
[HTTPBinding]	OMA-TS-DM_HTTPBinding-V1_3-20101207-C	OMA Device Management HTTP Binding
[Meta]	OMA-TS-DM_Metainfo-V1_3-20100525-C	OMA Device Management Meta Information
[OBEXBinding]	OMA-TS-DM_OBEXBinding-V1_3-20100525-C	OMA Device Management OBEX Binding
[PushBinding]	OMA-TS-DM_PushBinding-V1_3-20101207-C	OMA Device Management Push Binding
[WSPBinding]	OMA-TS-DM_WSPBinding-V1_3-20101207-C	OMA Device Management WSP Binding
Supporting Files		
[DMAccDDF]	OMA-SUP-MO_DM_DMAcc-V1_3-20100525-C	OMA DM Account Device Description File. Working file in DM_MO directory: http://www.openmobilealliance.org/tech/omna/dm_mo/dm_dmacc-v1_3.ddf
[DevInfoDDF]	OMA-SUP-MO_DM_DevInfo-V1_3-20100525-C	OMA DM Device Information Device Description File. Working file in DM_MO directory: http://www.openmobilealliance.org/tech/omna/dm_mo/dm_devinfo-v1_3.ddf

[DevDetailDDF]	OMA-SUP-MO_DM_DevDetail- V1_3-20101207-C	OMA DM Detailed Information Device Description File. Working file in DM_MO directory: http://www.openmobilealliance.org/tech/omna/dm_mo/dm_devdetail-v1_3.ddf
[DMDICT]	OMA-SUP-DM_Dictionary-V1_0-20100525-C	OMA DM Dictionary
[DMDDFDTD]	OMA-SUP-dtd_dm_ddf- V1_3-20101207-C	OMA DM Device Description Framework DTD Working file in DTD directory: http://www.openmobilealliance.org/tech/DTD/dm_ddf-v1_3.dtd
[MetaDTD]	OMA-SUP-DTD-DM_MetaInfo-V1_3-20101207-C	OMA DM Device Description Framework DTD Working file in DTD directory: http://www.openmobilealliance.org/tech/DTD/dm_meta-v1.3.dtd
[REPPRODTD]	OMA-SUP-DTD-DM_RepPro-V1_3-20101207-C	OMA DM Device Description Framework DTD Working file in DTD directory: http://www.openmobilealliance.org/tech/DTD/dm_repro-v1.3.dtd
[ACw7DM]	OMA-SUP-ac_w7_dm-V1_0_1-20080617-A	OMA DM w7 Application Characteristic. Working file in AC directory: http://www.openmobilealliance.org/tech/omna/dm-ac/ac_w7_dm-v1_0.txt

Table 1: Listing of Documents in DM V1.3 Enabler

6. Conformance Requirements Notation Details

This section is informative

The tables in following chapters use the following notation:

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

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

Status: Entry in this column MUST accurately reflect the architectural status of the **Item** in question.

- M means the **Item** is mandatory for the class

- O means the **Item** is optional for the class

- NA means the **Item** is not applicable for the class

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

7. ERDEF for Device Management – Client Requirements

This section is normative.

Item	Feature / Application	Status	Requirement
OMA-ERDEF-DM-C-001	DM Client	M	[DMPRO] AND [DMREPU] AND [DMSEC] AND [DMTND] AND [DMTNDS] AND [DMSTDOBJ] AND [DMDDFDTD] AND [DMBOOT] AND [META].
OMA-ERDEF-DM-C-003	DM Client Notification	O	[DMNOTI]
OMA-ERDEF-DM-C_004	DM Client Sessionless	O	[DMSESS]
OMA-ERDEF-DM-C_005	DM Client HTTP Binding	O	[HTTPBinding]
OMA-ERDEF-DM-C_006	DM Client OBEX Binding	O	[OBEXBinding]
OMA-ERDEF-DM-C_007	DM Client WSP Binding	O	[WSPBinding]
OMA-ERDEF-DM-C_008	DM Client Push Binding	O	[PushBinding]

Table 2: ERDEF for Device Management Client-side Requirements

8. ERDEF for Device Management – Server Requirements

This section is normative.

Item	Feature / Application	Status	Requirement
OMA-ERDEF-DM-S-001	DM Server	M	[DMPRO] AND [DMREPU] AND [DMSEC] AND [DMTND] AND [DMTNDS] AND [DMSTDOBJ] AND [DMDDFDTD] AND [META].
OMA-ERDEF-DM-S-002	DM Server Bootstrap	O	[DMBOOT]
OMA-ERDEF-DM-S-003	DM Server Notification	O	[DMNOTI]
OMA-ERDEF-DM-S-004	DM Server Sessionless	O	[DMSESS]
OMA-ERDEF-DM-S_005	DM Server HTTP Binding	O	[HTTPBinding]
OMA-ERDEF-DM-S_006	DM Server OBEX Binding	O	[OBEXBinding]
OMA-ERDEF-DM-S_007	DM Server WSP Binding	O	[WSPBinding]
OMA-ERDEF-DM-S_008	DM Server Push Binding	O	[PushBinding]

Table 3: ERDEF for Device Management Server-side Requirements

Appendix A. (Informative)

A.1 Approved Version History

Reference	Date	Description
N/A	N/A	No prior 1.3 version

A.2 Draft/Candidate Version 1.3 History

Document Identifier	Date	Sections	Description
Draft Versions OMA-ERELD-DM-V1_3	15 Oct 2008	All	Baseline to v1.3 using OMA-ERELD-DM-V1_2_1-20080617-A
	10 Nov 2008	7	Applied CR OMA-DM-2008-0159-CR_ERELD_Bootstrap
	05 Mar 2009	4.1, 4.3 All	Incorporated agreed CR: OMA-DM-DM13-2009-0006R01 Editorial/clerical changes
	12 Mar 2009	All	Final editorial before RD Formal Review
	05 May 2009	5	Document Listing Updated
	02 Jun 2009	5	Document Listing Updated
	26 Jun 2009	5	Document Listing Updated
	29 Jul 2009	5	Document Listing Updated
	01 Sep 2009	5	Document Listing Updated
	22 Sep 2009	5	Document Listing Updated Status Changed to Candidate by TP TP Ref # OMA-TP-2009-0423-INP_DM_V1_3_AD_for_Candidate_Re_Approval
	24 Nov 2009	All	Applied OMA-DM-DM13-2009-0086-CR_ERELD_Updates OMA-DM-DM13-2009-0101R01-CR_ERELD_update
	28 Jan 2010	2.1, 5, 7, 8	Applied OMA-DM-DM13-2010-0001R01-CR_ERELD_Update Editorial clean-up by DSO
	04 Feb 2010	2.1, 5	Applied OMA-DM-DM13-2010-0026-CR_Dictionary_Into_ERELD
	05 Feb 2010	4.3	Applied OMA-DM-DM13-2010-0038R01-CR_DM_1.3_Feature_Summary_4_ERELD
	11 Feb 2010	2.1, 5	Update of documents listing
	28 Apr 2010	5	Update of documents listing before closure of Consistency Review Language set to English UK.
	06 May 2010	5	Changes to permanent documents before Candidate approval, list of documents updated to reflect this
Candidate Version OMA-ERELD-DM-V1_3	25 May 2010	N/A	Status changed to Candidate by TP Ref # OMA-TP-2010-0221-INP_DM_V1.3_ERP_and_ETR_for_Candidate_approval
Draft Versions OMA-ERELD-DM-V1_3	26 Aug 2010	2.1, 5, 7, 8	Applied OMA-DM-DM13-2010-0091-CR_Add_Push_to_ERELD
	17 Nov 2010	5	Changes to permanent documents before Candidate re- approval, list of documents updated to reflect this
Candidate Version OMA-ERELD-DM-V1_3	07 Dec 2010	N/A	Status changed to Candidate by TP Ref # OMA-TP-2010-0502-INP_DM_V1_3_ERP_and_ETR_for_Candidate_re_approval