



Enabler Release Definition for OMA Device Management

Candidate Version 1.2 – 08 Feb 2006

Open Mobile Alliance
OMA-ERELED-DM-V1_2-20060208-C

Use of this document is subject to all of the terms and conditions of the Use Agreement located at <http://www.openmobilealliance.org/UseAgreement.html>.

Unless this document is clearly designated as an approved specification, this document is a work in process, is not an approved Open Mobile Alliance™ specification, and is subject to revision or removal without notice.

You may use this document or any part of the document for internal or educational purposes only, provided you do not modify, edit or take out of context the information in this document in any manner. Information contained in this document may be used, at your sole risk, for any purposes. You may not use this document in any other manner without the prior written permission of the Open Mobile Alliance. The Open Mobile Alliance authorizes you to copy this document, provided that you retain all copyright and other proprietary notices contained in the original materials on any copies of the materials and that you comply strictly with these terms. This copyright permission does not constitute an endorsement of the products or services. The Open Mobile Alliance assumes no responsibility for errors or omissions in this document.

Each Open Mobile Alliance member has agreed to use reasonable endeavors to inform the Open Mobile Alliance in a timely manner of Essential IPR as it becomes aware that the Essential IPR is related to the prepared or published specification. However, the members do not have an obligation to conduct IPR searches. The declared Essential IPR is publicly available to members and non-members of the Open Mobile Alliance and may be found on the “OMA IPR Declarations” list at <http://www.openmobilealliance.org/ipr.html>. The Open Mobile Alliance has not conducted an independent IPR review of this document and the information contained herein, and makes no representations or warranties regarding third party IPR, including without limitation patents, copyrights or trade secret rights. This document may contain inventions for which you must obtain licenses from third parties before making, using or selling the inventions. Defined terms above are set forth in the schedule to the Open Mobile Alliance Application Form.

NO REPRESENTATIONS OR WARRANTIES (WHETHER EXPRESS OR IMPLIED) ARE MADE BY THE OPEN MOBILE ALLIANCE OR ANY OPEN MOBILE ALLIANCE MEMBER OR ITS AFFILIATES REGARDING ANY OF THE IPR'S REPRESENTED ON THE “OMA IPR DECLARATIONS” LIST, INCLUDING, BUT NOT LIMITED TO THE ACCURACY, COMPLETENESS, VALIDITY OR RELEVANCE OF THE INFORMATION OR WHETHER OR NOT SUCH RIGHTS ARE ESSENTIAL OR NON-ESSENTIAL.

THE OPEN MOBILE ALLIANCE IS NOT LIABLE FOR AND HEREBY DISCLAIMS ANY DIRECT, INDIRECT, PUNITIVE, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES ARISING OUT OF OR IN CONNECTION WITH THE USE OF DOCUMENTS AND THE INFORMATION CONTAINED IN THE DOCUMENTS.

© 2006 Open Mobile Alliance Ltd. All Rights Reserved.

Used with the permission of the Open Mobile Alliance Ltd. under the terms set forth above.

Contents

1. SCOPE	4
2. REFERENCES	6
2.1 NORMATIVE REFERENCES.....	6
2.2 INFORMATIVE REFERENCES.....	6
3. TERMINOLOGY AND CONVENTIONS	7
3.1 CONVENTIONS.....	7
3.2 DEFINITIONS.....	7
3.3 ABBREVIATIONS	7
4. INTRODUCTION	8
5. DOCUMENT LISTING FOR DEVICE MANAGEMENT 1.2	9
6. MINIMUM FUNCTIONALITY DESCRIPTION FOR DEVICE MANAGEMENT (INFORMATIVE)	10
7. CONFORMANCE REQUIREMENTS NOTATION DETAILS	11
8. ERDEF FOR DEVICE MANAGEMENT - CLIENT REQUIREMENTS.....	12
9. ERDEF FOR DEVICE MANAGEMENT - SERVER REQUIREMENTS.....	13
APPENDIX A. CHANGE HISTORY (INFORMATIVE).....	14
A.1 APPROVED VERSION HISTORY	14
A.2 DRAFT/CANDIDATE VERSION 1.2 HISTORY	14

Figures

Figure 1: OMA DS and DM Specification Structure and Relationship	4
--	---

Tables

Table 1 ERDEF for Device Management Client-side Requirements	12
Table 2 ERDEF for Device Management Server-side Requirements	13

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 v1.2 specifications are based on the OMA Device Management (DM) v1.1.2 specifications and make use of the OMA SyncML Common v1.2 specifications as specified in the OMA SyncML Common specifications Enabler Release Definition [ERELEDSC].

The SyncML Initiative, Ltd. was a not-for-profit corporation formed by a group of companies who co-operated to produce an open specification for data synchronization and device management. Prior to SyncML, data synchronization and device management had been based on a set of different, proprietary protocols, each functioning only with a very limited number of devices, systems and data types. These non-interoperable technologies have complicated the tasks of users, manufacturers, service providers, and developers. Further, a proliferation of different, proprietary data synchronization and device management protocols has placed barriers to the extended use of mobile devices, has restricted data access and delivery and limited the mobility of the users.

The SyncML Initiative merged with the Open Mobile Alliance in November 2002. The SyncML legacy specifications were converted to the OMA format with the 1.1.2 versions of OMA SyncML Common, OMA Data Synchronization and OMA Device Management in May 2002. The relationship between these documents which had been created during the SyncML Initiative has been preserved and is depicted in Figure 1: OMA DS and DM Specification Structure and Relationship.

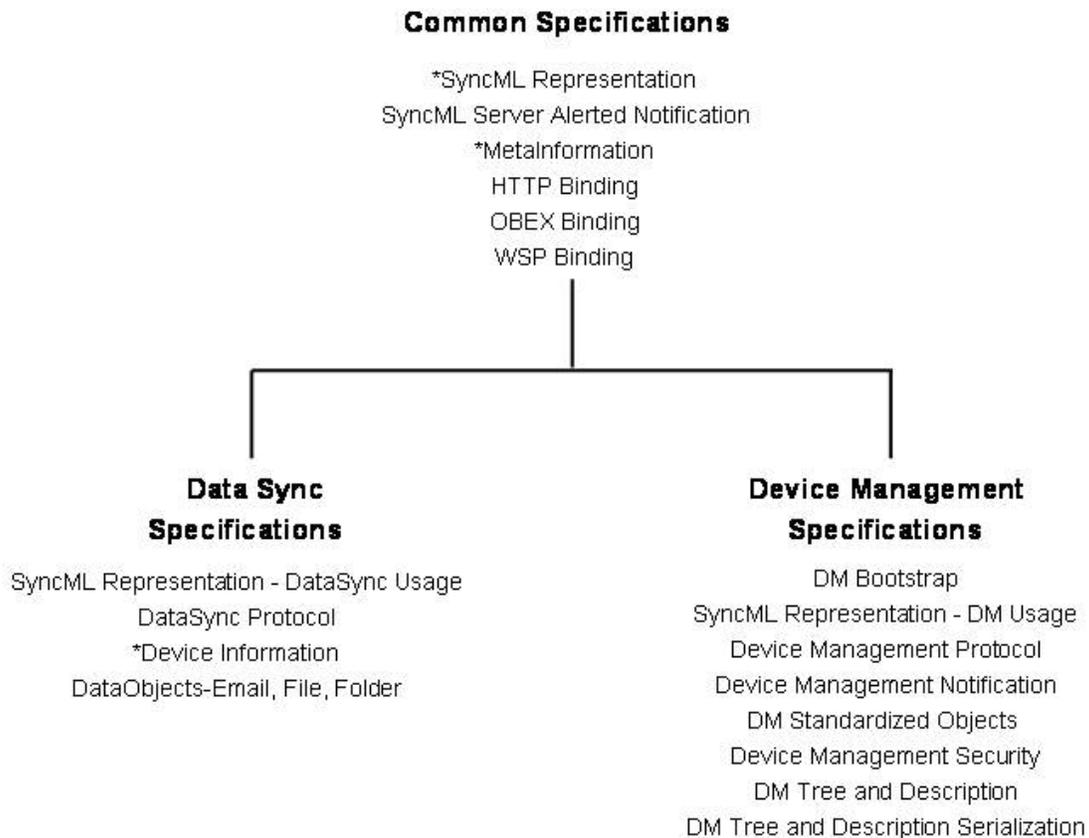


Figure 1: OMA DS and DM Specification Structure and Relationship

Although the SyncML Common specification defines transport bindings that specify how to use a particular transport to exchange messages and responses, the SyncML Common representation, synchronization and device management protocols are transport-independent. Each package in these protocols is completely self-contained, and could in principle be carried by any transport. The initial bindings specified are HTTP, WSP and OBEX, but there is no reason why SyncML Common could not be implemented using email or message queues, to list only two alternatives. Because the SyncML Common messages are self-contained, multiple transports may be used without either the server or client devices having to be aware of the network topology. Thus, a short-range OBEX connection could be used for local connectivity, with the messages being passed on via HTTP to an Internet-hosted synchronization server.

2. References

2.1 Normative References

- [DMBOOT] “OMA Device Management Bootstrap, Version 1.2”. Open Mobile Alliance™. OMA-TS-DM-Bootstrap-V1_2. [URL:http://www.openmobilealliance.org](http://www.openmobilealliance.org)
- [DMDDFDTD] “OMA DM Device Description Framework, Version 1.2”. Open Mobile Alliance™. OMA-TS-DM-DDF-V1_2. [URL:http://www.openmobilealliance.org](http://www.openmobilealliance.org)
- [DMNOTI] “OMA Device Management Notification Initiated Session, Version 1.2”. Open Mobile Alliance™. OMA-DM-Notification-V1_2. [URL:http://www.openmobilealliance.org](http://www.openmobilealliance.org)
- [DMPRO] “OMA Device Management Protocol, Version 1.2”. Open Mobile Alliance™. OMA-TS-DM-Protocol-V1_2. [URL:http://www.openmobilealliance.org](http://www.openmobilealliance.org)
- [DMRD] “OMA Device Management Requirements Document, Version 1.2”. Open Mobile Alliance™. OMA-RD-DM-V1_2. [URL:http://www.openmobilealliance.org](http://www.openmobilealliance.org)
- [DMREPU] “OMA Device Management Representation Protocol, Version 1.2”. Open Mobile Alliance™. OMA-TS-DM-RepPro-V1_2. [URL:http://www.openmobilealliance.org](http://www.openmobilealliance.org)
- [DMSEC] “OMA Device Management Security, Version 1.2”. Open Mobile Alliance™. OMA-TS-DM-Security-V1_2. [URL:http://www.openmobilealliance.org](http://www.openmobilealliance.org)
- [DMSTDOBJ] “OMA Device Management Standardized Objects, Version 1.2”. Open Mobile Alliance™. OMA-TS-DM-StdObj-V1_2. [URL:http://www.openmobilealliance.org](http://www.openmobilealliance.org)
- [DMTND] “OMA Device Management Tree and Description, Version 1.2”. Open Mobile Alliance™. OMA-TS-DM-TND-V1_2. [URL:http://www.openmobilealliance.org](http://www.openmobilealliance.org)
- [DMTNDS] “OMA Device Management Tree and Description Serialization, Version 1.2”. Open Mobile Alliance™. OMA-TS-DM-TNDS-V1_2. [URL:http://www.openmobilealliance.org](http://www.openmobilealliance.org)
- [ERELDSC] “Enabler Release Definition for SyncML Common Specifications, version 1.2”. Open Mobile Alliance™. OMA-ERELD-SyncML-Common-V1_2. [URL:http://www.openmobilealliance.org](http://www.openmobilealliance.org)
- [IOPPROC] “OMA Interoperability Policy and Process”, Version 1.1, Open Mobile Alliance™, OMA-IOP-Process-V1_1, [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)

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 8 and 9 to formally express the structure and internal dependencies between specifications in the Enabler Release specification baseline is detailed in [IOPPROC].

3.2 Definitions

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 fulfil a number of related market requirements.
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.
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
ERELED	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. Introduction

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 v1.2 specifications.

It should be understood that the OMA SyncML Common v1.2 specifications must be used in conjunction with the OMA Device Management Enabler Release, version 1.2. Fully conformant DM client and DM server implementations can only be achieved through combining the conformance requirements outlined within this enabler release definition with those outlined within the SyncML Common Specifications [ERELEDSC] enabler release definition.

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.

5. Document Listing for Device Management 1.2

This section is normative.

Doc Ref	Permanent Document Reference	Description
Requirement Document		
[DMRD]	OMA-RD-DM-V1_2-20050607-C	Requirement Document for DM 1.2 Enabler
Technical Specifications		
[DMBOOT]	OMA-TS-DM-Bootstrap-V1_2-20051216-C	OMA Device Management Bootstrap
[DMNOTI]	OMA-TS-DM-Notification-V1_2-20050607-C	OMA Device Management Notification Initiated Session
[DMPRO]	OMA-TS-DM-Protocol-V1_2-20050826-C	OMA Device Management Protocol
[DMREPU]	OMA-TS-DM-RepPro-V1_2-20051216-C	OMA Device Management Representation Protocol
[DMSEC]	OMA-TS-DM-Security-V1_2-20060208-C	OMA Device Management Security
[DMSTDOBJ]	OMA-TS-DM-StdObj-V1_2-20060208-C	OMA Device Management Standardized Objects
[DMTND]	OMA-TS-DM-TND-V1_2-20050615-C	OMA Device Management Tree and Description
[DMTNDS]	OMA-TS-DM-TNDS-V1_2-20050607-C	OMA Device Management Tree and Description Serialization
Supporting Files		
[DMDDFDTD]	OMA-TS-DM-DDF-V1_2-20050607-C	OMA DM Device Description Framework DTD Working file in DTD directory: http://www.openmobilealliance.org/tech/DTD/OMA-TS-DM-DDF-V1_2-20050607-C.dtd /

6. Minimum Functionality Description for Device Management (Informative)

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 a 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.

7. 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.

8. 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 [DMSTDOBJ] AND [DMDDFDTD].
OMA-ERDEF-DM-C-002	DM Client Bootstrap	O	[DMBOOT]
OMA-ERDEF-DM-C-003	DM Client Notification	O	[DMNOTI]
OMA-ERDEF-DM-C-004	DM TND Serialization	O	[DMTNDS]

Table 1 ERDEF for Device Management Client-side Requirements

*It should be understood that the OMA SyncML Common v1.2 specifications MUST be used in conjunction with the OMA Device Management Enabler Release, version 1.2. Fully conformant DM client implementations can only be achieved through combining the conformance requirements outlined above with those outlined within the SyncML Common Specifications enabler release definition [ERELDSC].

9. 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 [DMSTDOBJ] AND [DMDDFDTD].
OMA-ERDEF-DM-S-002	DM Bootstrap Server	O	[DMBOOT]
OMA-ERDEF-DM-S-003	DM Notification Server	O	[DMNOTI]
OMA-ERDEF-DM-S-004	DM TND Serialization	O	[DMTND S]

Table 2 ERDEF for Device Management Server-side Requirements

*It should be understood that the OMA SyncML Common v1.2 specifications must be used in conjunction with the OMA Device Management Enabler Release, version 1.2. Fully conformant DM server implementations can only be achieved through combining the conformance requirements outlined above with those outlined within the SyncML Common Specifications enabler release definition [ERELDSC].

Appendix A. Change History

(Informative)

A.1 Approved Version History

Reference	Date	Description
OMA-ERELED-SyncML_DM-V1_1_2-20031209-A	09 Dec 2003	ERELED for DM 1.1.2.

A.2 Draft/Candidate Version 1.2 History

Document Identifier	Date	Sections	Description
Draft Versions OMA-ERELED-DM-V1_2	16 Dec 2004	All	Initial Version
	07 Jan 2004	1	Updated picture.
	20 Jan 2004	2.1, B	Updated RD reference. Removed Appendix B (moved to RD)
	31 Jan 2005	All	Updated references to the new filenames.
	22 Feb 2005		Bootstrap CRs applied DM-2005-0067R01, 0068R03, 0080, 0088R02. Notification CR applied DM-2004-0349R01 Protocol CR applied DM-2005-0082R03. RepPro CRs applied DM-2005-0056, 0086. Security CRs applied 2005-0011R06, 0064, 0082R03, 0083R01. Standard Object CRs applied DM-2004-0350, DM-2005-0007.
	1 Apr 2005		Bootstrap CRs applied DM-2005-0103, 0113, 0126R01. Protocol CRs applied DM-2005-0096R02 RepPro CR applied DM-2005-0120R02 Security CRs applied DM-2005-0085R05, 0106R02. TND CRs applied DM-2005-0094R01, 0097, 0124, 0125.
	21 Apr 2005		Bootstrap CRs applied DM-2005-0191 Notification CRs applied DM-2004-0186 Protocol CRs applied DM-2005-166, 0190. RepPro CRs applied DM-2005-0133R04, 0185. Security CRs applied DM-2005-0160 Standard Object CRs applied DM-2005-0156, 0157, 0159R01, 161R01, 0162, 0167R01, 0179, 0184, 0190. TND CRs applied DM-2005-0134R02, 0171, 0183. ETR CRs applied DM-2005-0187R01, 0188R01, 0189.
	03 May 2005	Filename Title page References	Changed version from 1.2.0 to 1.2
	11 May 2005		Bootstrap CRs applied DM-2005-0222 Standard Object CRs applied DM-2005-0212R01, 0213
Candidate Versions OMA-ERELED-DM-V1_2	07 Jun 2005	n/a	Candidate version approved by TP R&A OMA-TP-2005-0137R01-DM-V1_2-for-Candidate-approval
	28 Jun 2005	Bootstrap Protocol TND	CRs implemented DM-2005-0232R01, 0233R02. CRs implemented DM-2005-0236R01, 0262, 0266, 0270R01 CRs implemented DM-2005-0237, 0264.
	29 Jul 2005	Protocol Security RepPro	CR implemented DM-2004-0162R01 CR implemented DM-2004-0162R01 CR implemented DM-2004-0162R01
	26 Aug 2005	Protocol	CR implemented DM-2005-0329R01
	16 Dec 2005	Bootstrap RepPro	CR implemented DM-2005-0418R07 CR implemented DM-2005-0406
	08 Feb 2006	StdObj Security	CR implemented DM-2006-0007R01 CR implemented DM-2006-0016