



# **Enabler Release Definition for OMA Device Management**

## **Candidate Version 1.2 – 26 Aug 2005**

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**Open Mobile Alliance**  
OMA-ERELED-DM-V1\_2-20050826-C

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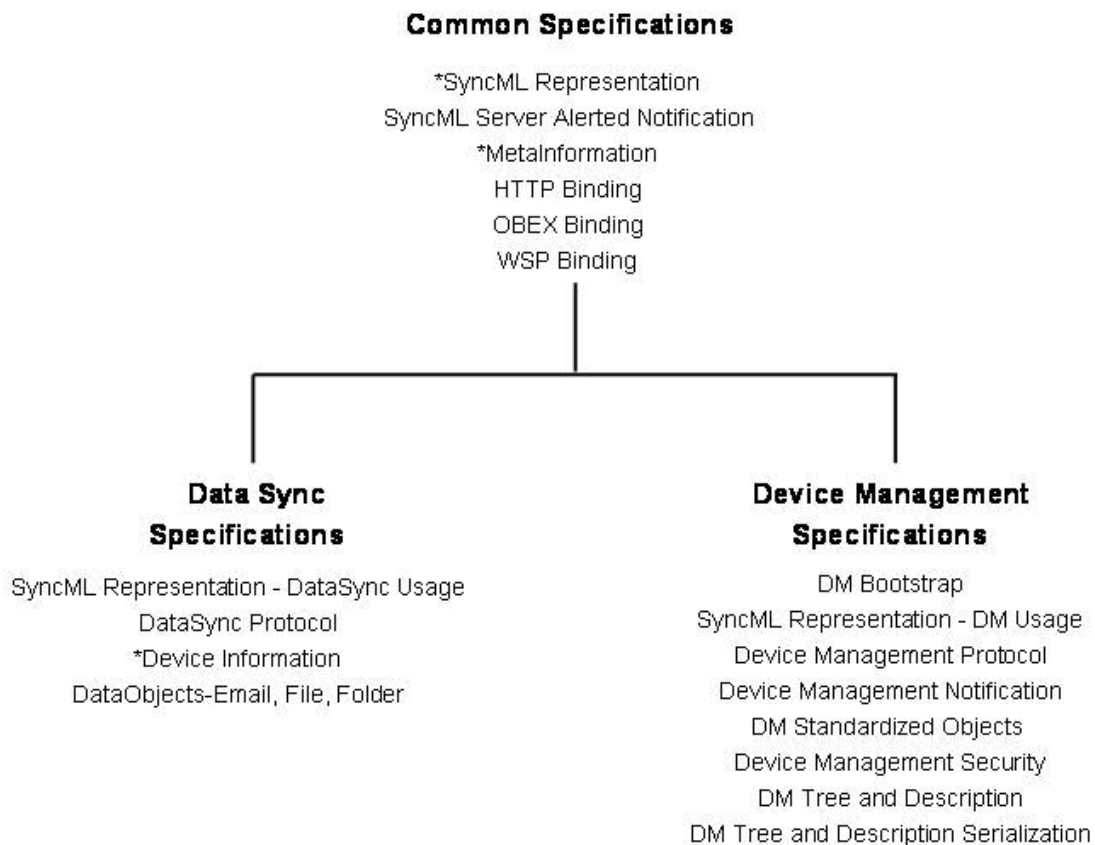
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# 1. Scope

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

<b>Enabler Release</b>	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.
<b>Device Management</b>	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.
<b>Minimum Functionality Description</b>	Description of the guaranteed features and functionality that will be enabled by implementing the minimum mandatory part of the Enabler Release.

### 3.3 Abbreviations

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

This section is normative.

The following section comprises the OMA DM v1.2 enabler release.

Document	Reference
OMA Device Management Bootstrap, Version 1.2. <a href="http://www.openmobilealliance.org">URL:http://www.openmobilealliance.org</a>	[DMBOOT]
OMA DM Device Description Framework DTD, Version 1.2. <a href="http://www.openmobilealliance.org">URL:http://www.openmobilealliance.org</a>	[DMDDFDTD]
OMA Device Management Notification Initiated Session, Version 1.2. <a href="http://www.openmobilealliance.org">URL:http://www.openmobilealliance.org</a>	[DMNOTI]
OMA Device Management Protocol, Version 1.2. <a href="http://www.openmobilealliance.org">URL:http://www.openmobilealliance.org</a>	[DMPRO]
OMA Device Management Requirements Document, Version 1.2. <a href="http://www.openmobilealliance.org">URL:http://www.openmobilealliance.org</a>	[DMRD]
OMA Device Management Representation Protocol, Version 1.2. <a href="http://www.openmobilealliance.org">URL:http://www.openmobilealliance.org</a>	[DMREPU]
OMA Device Management Security, Version 1.2. <a href="http://www.openmobilealliance.org">URL:http://www.openmobilealliance.org</a>	[DMSEC]
OMA Device Management Standardized Objects, Version 1.2. <a href="http://www.openmobilealliance.org">URL:http://www.openmobilealliance.org</a>	[DMSTDOBJ]
OMA Device Management Tree and Description, Version 1.2. <a href="http://www.openmobilealliance.org">URL:http://www.openmobilealliance.org</a>	[DMTND]
OMA Device Management Tree and Description Serialization, Version 1.2. <a href="http://www.openmobilealliance.org">URL:http://www.openmobilealliance.org</a>	[DMTNDS]

## 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