



Enabler Release Definition for DRM V2.1

Candidate Version 2.1 – 24 Jul 2007

Open Mobile Alliance
OMA-ERELED-DRM-V2_1-20070724-C

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1. Scope

The scope of this document is limited to the Enabler Release Definition of Digital Rights Management 2.1 according to OMA Release process and the Enabler Release specification baseline listed in section 5.

2. References

2.1 Normative References

- [IOPPROC] “OMA Interoperability Policy and Process”, Version 1.1, Open Mobile Alliance™, OMA-IOP-Process-V1_1,
URL:<http://www.openmobilealliance.org/>
- [DRMREQ-v2.1] “OMA DRM Requirements V2.1”. Open Mobile Alliance™. OMA-DRM-REQ-V2_1.
URL:<http://www.openmobilealliance.org/>
- [DRM-v2.1] “OMA DRM V2.1”. Open Mobile Alliance™. OMA-DRM-DRM-V2_1.
URL:<http://www.openmobilealliance.org/>
- [DRMCF-v2.1] “OMA DRM Content Format V2.1”. Open Mobile Alliance™. OMA-DRM-DCF-V2_1.
URL:<http://www.openmobilealliance.org/>
- [DRMREL-v2.1] “OMA DRM Rights Expression Language V2.1”. Open Mobile Alliance™. OMA-DRM-REL-V2_1.
URL:<http://www.openmobilealliance.org/>
- [DRMERELD-v2.1] “Enabler Release Definition for DRM V2.1”. Open Mobile Alliance™. OMA-DRM-EREELD-V2_1.
URL:<http://www.openmobilealliance.org/>
- [DRMROAPXSD-v2.1] Normative support file to [DRM-v2.1], filename “OMA-DRM-ROAP-V2_1-<date>.xsd”, containing the ROAP XML schema

2.2 Informative References

- [DRMARCH-v2.1] “OMA DRM Architecture V2.1”. Open Mobile Alliance™. OMA-DRM-ARCH-V2_1.
URL:<http://www.openmobilealliance.org/>
- [DRMETR-v2.1] “Enabler Test Requirements for DRM V2.1”. Open Mobile Alliance™. OMA-DRM-ETR-V2_1.
URL:<http://www.openmobilealliance.org/>
- [DRMDTD-v2.1] Informative support file to [DRMREL-v2.1], filename “DRMREL2_1.dtd”, containing the REL DTD file
Note: this file is for convenience provided in the enabler package
- [DRMXSD-v2.1] Informative support file to [DRMREL-v2.1], filename “OMA-DD2_1.xsd”, containing the Data Dictionary V2.1 XML Schema
Note: this file is for convenience provided in the enabler package

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.

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

DCF	DRM Content Format
DRM	Digital Rights Management
DTD	Document Type Definition
ERDEF	Enabler Requirement Definition
ERELED	Enabler Release Definition
HTTP	HyperText Transfer Protocol
IMSI	International Mobile Subscriber Identity
MAC	Message Authentication Code
OBEX	IrDA Object Exchange Protocol
OCSP	Online Certificate Status Protocol
OMA	Open Mobile Alliance
PDCF	Packetized DRM Content Format
PDU	Protocol Data Unit
PKI	Public Key Infrastructure
REL	Rights Expression Language
RI	Rights Issuer
RO	Rights Object
ROAP	Rights Object Acquisition Protocol
WIM	Wireless Identity Module
XML	eXtensible Markup Language

4. Introduction

This document outlines the Enabler Release Definition for DRM V2.1 and the respective conformance requirements for clients and servers implementing claiming compliance to it as defined by Open Mobile Alliance across the specification baseline.

OMA “Digital Rights Management” (DRM) enables the distribution and consumption of digital content in a controlled manner. The content is distributed and consumed on authenticated devices per the usage rights expressed by the content owners. OMA DRM work addresses the various technical aspects of this system by providing appropriate specifications for content formats, protocols, and a rights expression language.

This scope for the OMA DRM 2.1 enabler release is to define the protocols, messages and mechanisms necessary to implement the DRM system in the mobile environment. It builds upon the OMA DRM v2.0 and OMA DRM 1.0 enabler releases, but extends them to address the specific requirements enumerated in the OMA DRM 2.1 Requirements document.

There is a growing need for a rights management system in the mobile industry so that the operators and content providers can make digital content available to consumers in a controlled manner. Digital Rights Management is a set of technologies that provide the means to control the distribution and consumption of the digital media objects. OMA has already published releases 1.0 and 2.0 of the DRM specifications. The release 1.0 specifications provide some fundamental building blocks for a DRM system. But, they lack the complete security necessary for a robust, end-to-end DRM system that takes into account the need for secure distribution, authentication of Devices, revocation and other aspects. Release 2.0 of the DRM specifications addressed these missing aspects of the OMA DRM 1.0 and this release of the specifications adds additional functionality.

The main differences between OMA DRM 1.0 and OMA DRM 2.0 are significantly improved security and functionality. Improved security is for example achieved by providing bilateral authorization between rights issuer and device, based on PKI certificates and online revocation check of them, and by confidentiality and integrity protecting rights objects. A Rights objects is bound to a device, by protecting it with the device public key, or to small domains of devices, by protecting it with a domain key.

The main differences between the OMA DRM 2.0 and OMA DRM 2.1 releases are the addition of several features including: metering, content differentiation, RO installation confirmation, user editable metadata, a binary format for ROAP triggers and RO upload functionality.

The OMA DRM system enables content providers to grant permissions for media objects that define how they should be consumed. The DRM system is independent of the media object formats and the given operating system or run-time environment. The media objects controlled by the DRM system include but are not limited to: games, ring tones, photos, music clips, video clips, streaming media, etc. A content provider can grant appropriate permissions to the user for each of these media objects. The content is distributed with cryptographic protection; hence, the Protected Content is not usable without the associated Rights Object on a Device. Given this fact, fundamentally, the users are purchasing permissions embodied in Rights Objects and the Rights Objects need to be handled in a secure and un-compromising manner.

The Protected Content can be delivered to the Device by any means (over the air, LAN/WLAN, local connectivity, removable media, etc.). But the Rights Objects are tightly controlled and distributed by the Rights Issuer in a controlled manner. The Protected Content and Rights Objects can be delivered to the Device by downloading them together, or by sending them separately. The system does not imply any order or “bundling” of these two objects. It is not within the scope of the DRM system to address the specific payment methods employed by the Rights Issuers.

OMA DRM 2.1 consists of a set of specifications developed by OMA to address the need for digital rights management. For a detailed discussion of the overall system architecture, please refer to [DRMARCH-v2.1]. And, for a detailed discussion of the Rights Expression Language that is used to construct the Rights Objects, please refer to [DRMREL-v2.1]. The DRM Content Formats are specified in the [DRMDCF-v2.1] specification. The [DRM-v2.1] specification defines the format and semantics of the cryptographic protocol, messages, processing instructions and certificate profiles that will, together enable an end-to-end system for protected content distribution. This includes the Rights Object Acquisition Protocol messages, the Key Management protocols, the domains functionality (sharing of content and rights among a set of Devices enrolled into a Domain), super distribution, transport mappings for ROAP, binding rights to user identities, exporting to other DRMs, the certificate profiles, metering, RO installation confirmation, a binary format for ROAP triggers, RO upload functionality and application to other services like MMS and streaming.

5. Document Listing for DRM 2.1

This section is normative.

Doc Ref	Permanent Document Reference	Description
Requirement Document		
[DRMREQ-v2.1]	OMA-RD-DRM-V2_1-20061010-C	Defines the requirements for the DRM 2.1 specifications
Architecture Document		
[DRMARCH-v2.1]	OMA-AD-DRM-V2_1-20070724-C	Defines the overall architecture for DRM 2.1 including informative descriptions of the technologies and their uses
Technical Specifications		
[DRM-v2.1]	OMA-TS-DRM-DRM-V2_1-20070724-C	Defines the the format and semantics of the cryptographic protocol, messages, processing instructions and certificate profiles , including the Rights Object Acquisition Protocol (ROAP) messages, the domains functionality , transport mappings for ROAP, binding rights to user identities, exporting to other DRMs, metering, installation confirmation, the binary encoding for ROAP triggers, RO upload functionality, the certificate profiles, and application to other services
[DRMREL-v2.1]	OMA-TS-DRM-REL-V2_1-20070724-C	Defines the rights expression language used to describe the permissions and constraints governing the usage of DRM protected media objects including additions to support metering and content differentiation. Note: in the enabler package, this document is accompanied by the informative support files [DRMDTD-v2.1] and [DRMXSD-v2.1]
[DRMCF-v2.1]	OMA-TS-DRM-DCF-V2_1-20070724-C	Defines the content format for DRM protected (encrypted) media objects.
Supporting Files		
[DRMROAPXSD-v1.1]	OMA-SUP-XSD_DRM_ROAP-V1_1-20070724-C	Defines the ROAP XML schema Working file in Schema directory: file: drm_roap-v1_1.xsd path: http://www.openmobilealliance.org/tech/profiles/
[DRMRELDTD-v2.1]	OMA-SUP-DTD_DRM_REL-V2_1-20070724-C	DTD for the Rights Expression Language as defined in [DRMREL-v2.1]. Working file in DTD directory: file: drm_rel_dtd-v2_1.dtd path: http://www.openmobilealliance.org/tech/dtd/
[DRMRELXSD-v2.1]	OMA-SUP-XSD_DRM_REL-V2_1-20070724-C	Defines the ODRL Mobile profile Expression Language. Working file in Schema directory: file: drm_rel_ex-v2_1.xsd http://www.openmobilealliance.org/tech/profiles
[DRMRELDXSD-v2.1]	OMA-SUP-XSD_DRM_RELDD-V2_1-20070724-C	Defines the ODLR Mobile profile Data Dictionary Working file in Schema directory: file: drm_rel_dd-v2_1.xsd http://www.openmobilealliance.org/tech/profiles
[DRMRELODDXSD-	OMA-SUP-XSD_DRM_RELODD-V2_1-	Defined the OMA Data Dictionary

v2.1]	20070724-C	Working file in Schema directory: file: drm_rel_odd-v2_1.xsd http://www.openmobilealliance.org/tech/profiles
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Table 1: Listing of Documents in DRM 2.1 Enabler

6. Minimum Functionality Description for DRM

This section is informative.

There exist two different types of OMA DRM 2.1 clients: Unconnected Devices, and Connected Devices (for a definition, see [DRM-v2.1], section 3.2.). The minimum mandatory client functionality for the DRM specifications includes:

1. For Unconnected and Connected Devices:

- ROAP schema parsing and processing
- Storage of RI context information
- Certain hash, MAC, Signature, and Key Wrapping algorithms
- Certificate checking including OCSP response validation
- Key management
- The DCF and RO formats, including RO (REL) fields expressing permissions and constraints
- Replay Protection for ROs
- DCF integrity protection
- Content Differentiation
- User Editable Metadata
- RO Installation Confirmation
- Binary encoding for ROAP Triggers

2. For Connected Devices the functionality above under 1. and additionally

- DRM Time and DRM Time synchronisation
- Support for connectivity to Rights Issuers
- HTTP Transport Mapping
- Capability signalling
- Transaction Tracking
- Metering

3. For Unconnected Devices the functionality above under 1. and additionally

- Support for utilizing connectivity provided by a connected device, for example via OBEX

4. For Unconnected Devices that support DRM Time the functionality above under 3. and additionally

- Metering

The DRM specifications also define the following optional client functionality:

- Domains

- Export to other DRMs
- PDCF
- IMSI and WIM binding
- RO Upload

The minimum mandatory server functionality for the DRM specifications includes:

- ROAP schema parsing and processing
- Certificate processing, including OCSP validation
- The ROAP protocol PDUs
- ROAP Trigger support
- Certain hash, MAC, Signature, and Key Wrapping algorithms
- Key management
- The RO format, including RO fields expressing m\permissions and constraints
- Parent Rights Objects
- Domains
- Transaction Tracking
- Metering
- Content Differentiation
- User Editable Metadata
- RO Installation Confirmation

The DRM specifications also define the following optional server functionality:

- Hash Chain support for Domain Key Generation
- RO Upload
- Binary encoding for ROAP Triggers

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 DRM - Client Requirements

This section is normative.

Table 2: ERDEF for DRM Client-side Requirements

Item	Feature / Application	Status	Requirement
OMA-ERDEF-DRMv2.1-C-001	DRM 2.1 Client	M	OMA-ERDEF-DRMv2.1-C-002 OR OMA-ERDEF-DRMv2.1-C-003
OMA-ERDEF-DRMv2.1-C-002	Connected Device	O	DRM-v2.1:MCF AND DRM-CLI-CMN-024 AND DRM-CLI-CD-053 AND DRM-CLI-CD-054 AND DRM-CLI-CD-057 AND DRM-CLI-CD-058 AND DRM-CLI-CD-061 AND DRM-CLI-CD-062 AND DRM-CLI-CD-063 AND DRM-CLI-CD-069 AND DRM-CLI-CMN-071 AND DRM-CLI-CMN-072 AND DRM-CLI-CMN-073 AND DRM-CLI-CMN-074 AND DRMREL-v2.1:MCF AND DRM-REL-GEN-C-018 AND DRM-REL-GEN-C-019 AND DRM-REL-GEN-C-020 AND DRM-REL-GEN-C-021 AND DRM-REL-GEN-C-022 AND DRM-REL-GEN-C-023 AND DRMCF-v2.1:MCF
OMA-ERDEF-DRMv2.1-C-003	Unconnected Device	O	DRM-v2.1:MCF AND DRM-CLI-CMN-015 AND DRM-CLI-UD-065 AND DRM-CLI-UD-066 AND DRM-CLI-UD-067 AND DRM-CLI-UD-068 AND DRMREL-v2.1:MCF AND DRMCF-v2.1:MCF

Note: A DRM 2.1 client is either a Connected Device, with mandatory requirements as stated in the second row, or an Unconnected Device, with mandatory requirements as stated in the third row.

9. ERDEF for DRM - Server Requirements

This section is normative.

Table 3: ERDEF for DRM Server-side Requirements

Item	Feature / Application	Status	Requirement
OMA-ERDEF-DRMv2.1-S-001	DRM 2.1 Server	M	DRM-v2.1:MSF AND DRMREL-v2.1:MSF

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
OMA-xyyz-V1_0-20021001-A	01 Oct 2002	Initial document to address the basic starting point Ref TP Doc# OMA-TP-2002-1234-xyyzForApproval
OMA-xyyz-V1_1-20030405-A	05 Apr 2003	description of changed Ref TP Doc# OMA-TP-2003-0321-xyyzV1_1forApproval

A.2 Draft/Candidate Version 2.1 History

Document Identifier	Date	Sections	Description
Draft Versions OMA-ERELD-DRM-V2_1	02 Jan 2007	n/a	Fisrt Draft
	03 Jan 2007	5	2007 template Update of Section 5 with last Documents SUP file names for DRM_REL and OMA-DD fixed.
	15 Jan 2007	5	Minor update to OMA-TS-DRM_DCF
	29 Jun 2007	All	Cleanup in preparation for Approval as Candidate
Candidate version OMA-ERELD-DRM-V2_1	24 Jul 2007	n/a	Status changed to Candidate by TP TP ref# OMA-TP-2007-0273- INP_DRM_V2_1_ERP_for_Candidate_approval