Enabler Release Definition for Secure Content Exchange

Candidate Version 1.0 – 09 Dec 2008

Open Mobile Alliance

OMA-ERELD-SCE-V1_0-20081209-C

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1. Scope

The scope of this document is limited to the Enabler Release Definition of Secure Content Exchange 1.0 according to OMA Release process and the Enabler Release specification baseline listed in section 5.

2. References

2.1 Normative References

[RFC2119] "Key words for use in RFCs to Indicate Requirement Levels", S. Bradner, March 1997, URL:http://www.ietf.org/rfc/rfc2119.txt

[SCRRULES] "SCR Rules and Procedures", Open Mobile Alliance™, OMA-ORG-SCR_Rules_and_Procedures, URL:http://www.openmobilealliance.org/

[OMADRMv2.0] "Digital Rights Management", Open Mobile Alliance™, OMA-DRM-DRM-V2_0, URL:http://www.openmobilealliance.org/

[OMADRMv2.1] "Digital Rights Management", Open Mobile Alliance™, OMA-DRM-DRM-V2_1, URL:http://www.openmobilealliance.org/

2.2 Informative References

[OMADICT] "Dictionary for OMA Specifications", Version 2.6, Open Mobile Alliance™, OMA-ORG-Dictionary-V2_6-20070614-A, URL:http://www.openmobilealliance.org/

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”, "Release Version Overview" and “Conformance Requirements Notation Details”, 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 [SCRRULES].

3.2 Definitions

Definitions that are copied from **Error! Reference source not found.** are marked with (DRM V2.0). Definitions with the same name as in **Error! Reference source not found.** but different text are intended to overwrite the definitions from **Error! Reference source not found.**. Note, in particular, that some terms may also occur in **Error! Reference source not found.** but have new definitions (e.g. Copy).

Ad Hoc Domain	A group of Devices that engage in Ad Hoc Sharing that is governed by a Domain Policy.
Ad Hoc Sharing	Sharing that is intended to allow a source Device to share specified Rights with a recipient Device in spontaneous, unplanned situations (e.g. sharing a song with a new group of friends at a party or playing a video on a hotel room TV while travelling).
Backup/Remote Storage	Transferring Rights Objects and Content Objects to another location with the intention of transferring them back to the original Device (DRM V2.0).
Broadcast Program	A logical portion of a Broadcast Service with a distinct start and end time. In the case the Broadcast Program is not free-to-air, it can be offered individually for purchase, such as “Pay-Per-View”, or as part of a parent service (e.g. subscription service). A Broadcast Program may for example represent a movie, news show or soccer game.
Broadcast Service	A digital broadcast service delivered in an MPEG-2 transport stream consisting of a concatenation of Broadcast Programs, as defined in an MPEG-2 Program Map Table (PMT).
Content	One or more Media Objects (DRM V2.0).
Content Issuer	The entity making content available to the DRM Agent in a Device (DRM V2.0).
Content Provider	An entity that is either a Content Issuer or a Rights Issuer (DRM V2.0).
Copy	To make Rights existing on a source Device available for use by a recipient Device, without affecting availability on the source Device. Rights may be restricted on the recipient Device. Note: this is different from the V2.0 definition.
Device	A Device is the entity (hardware/software or combination thereof) within a user equipment that implements a DRM Agent. The Device is also conformant to the OMA DRM specifications. The Device may include a smart card module (e.g. a SIM) (DRM V2.0).
Domain	A group of Devices defined by a Rights Issuer such that the Rights Issuer can issue Rights Objects for the group that can be processed by all Devices within the group, and only those Devices (DRM V2.0).
Domain Authority	The entity to specify the Domain Policy for a User Domain or an Ad Hoc Domain.
Domain Enforcement Agent	The entity to enforce the Domain Policy on behalf of the Domain Authority. It may reside in the network as a service or in a User’s device.
Domain Policy	A collection of attributes which defines the policy determining characteristics of the membership of a User Domain or Ad Hoc Domain, as set by the Domain Authority that the Domain Enforcement Agent will enforce.
DRM Agent	The entity in the Device that manages Permissions for Media Objects on the Device (DRM V2.0).
DRM Content	Media Objects that are consumed according to a set of Permissions in a Rights Object (DRM V2.0).

DRM Time	A secure, non user-changeable time source. The DRM Time is measured in the UTC time scale (DRM V2.0).
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.
Execute	To execute a software programme (DRM V2.0).
Interaction Channel	A bi-directional channel used to engage in communication protocols (such as DRM v2 ROAP) with other entities. The Interactive Channel can for example be used to request a Rights Object from a Rights Issuer.
Imported-Content	OMA (P)DCF(s) resulting from converting Import-Ready Data.
Import-Ready Data	Content and associated Rights derived from Non-OMA DRM-sourced data that can be converted into OMA (P)DCFs and ROs.
Imported-Rights-Object	An OMA RO resulting from converting Import-Ready Data.
Imported-Data	Imported-Content and associated Imported-Rights-Object(s).
Lending	Sharing such that the Shared Rights cannot be used on the source Device as long as the recipient Device is able to render the shared Content associated with the Shared Rights.
Local Rights Manager (LRM)	An entity that is responsible for aspect(s) of Import and it may also manage an Imported-Content for a limited group of OMA DRM Agents.
Media Object	A digital work e.g. a ring tone, a screen saver, or a Java game (DRM V2.0).
Minimum Functionality Description	Description of the guaranteed features and functionality that will be enabled by implementing the minimum mandatory part of the Enabler Release.
Move	To make Rights existing initially on a source Device fully or partially available for use by a recipient Device, such that the Rights or parts thereof that become usable on the recipient Device can no longer be used on the source Device.
Non-OMA DRM	A protection system other than OMA DRM, which may include copy protection mechanisms for storage medium and/or transport mechanisms.
Partial Rights	A subset of a set of Rights, such that the Partial Rights are equally or more restrictive than those in the set.
Permission	Actual usages or activities allowed (by the Rights Issuer) over DRM Content.
Play	To create a transient, perceivable rendition of a resource.
Print	To create a fixed and directly perceivable rendition of a resource.
Proximity-Limited Domain	An Ad Hoc Domain in which all member Devices must be in proximity to the device on which the Domain Enforcement Agent resides.
Proximity-Limited Sharing	Ad Hoc Sharing that is possible only when the source and recipient Devices are in proximity.
Render Agent	The entity in a Render Client that manages the secure rendering of Media Objects on the Render Client.
Render Client	The entity (hardware, software or combination thereof) within a user equipment that implements a Render Agent. The Render Client is used to transiently render DRM Content.
Restore	Transferring the Protected Content and/or Rights Objects from an external location back to the Device from which they were backed up (DRM V2.0).
Rights	The collection of permissions and constraints defining under which circumstances access is granted to DRM Content.
Rights Issuer	An entity that issues Rights Objects to OMA DRM conformant Devices (DRM V2.0).
Rights Object	A collection of Permissions and other attributes which are linked to DRM Content.
Shared Rights	Rights that can be consumed on multiple Devices, where the allowed distribution and consumption of the Rights among the Devices are specified by permissions in the Rights themselves or in the Domain Policy of the Domain for which the Rights were obtained.
Sharing	The act of providing Shared Rights from a source Device to a recipient Device, such that the recipient Device is able to render the shared content associated with the Shared Rights.

State Information	A set of values representing current state associated with Rights. It is managed by the DRM Agent only when the Rights contain any of the stateful constraints (e.g. interval, count, timed-count, accumulated, etc.).
Superdistribution	A mechanism that (1) allows a User to distribute DRM Content to other Devices through potentially insecure channels and (2) enables the User of that Device to obtain a Rights Object for the superdistributed DRM Content (DRM V2.0).
Token Agent	The entity in a User Domain Token that manages the secure mutual authentication between User Domain Token and a Device in case of Token based access
Token based access	The act of accessing Content with Rights for a User Domain on a Device that is not a member of that User Domain after successful mutual authentication between the Token Agent of a User Domain Token that is associated with that User Domain and the DRM Agent in the non-member Device. The Domain Authority can specify in the Domain Policy the conditions under which the Device is allowed to access the Content.
User	The human user of a Device. The User does not necessarily own the Device (DRM V2.0).
User Domain	A group of Devices defined by the Domain Enforcement Agent such that, for example Rights Issuers, can issue Rights Objects with Permissions, Constraints and other attributes specifically for the Devices in the group.
User Domain Token	The entity (hardware, software or combination thereof; e.g. a SIM) within a user equipment that implements a Token Agent. A User Domain Token can be associated with one or more User Domains, and enables Token based access to the Content for each User Domain with which it is associated.

3.3 Abbreviations

CAS	Conditional Access System
CI	Content Issuer
DEA	Domain Enforcement Agent
DCF	DRM Content Format
DRM	Digital Rights Management
DVR	Digital Video Recorder
ERDEF	Enabler Requirement Definition
ERELD	Enabler Release Definition
LRM	Local Rights Manager
MDCF	MPEG-2 Transport Stream DRM Content Format
MP3	MPEG-1 Audio Layer 3 (public format for digital music)
OMA	Open Mobile Alliance
PDA	Personal Digital Assistant
RI	Rights Issuer
RO	Rights Object
SCE	Secure Content Exchange
SIM	Subscriber Identity Module
STB	A Set Top Box.
USB	Universal Serial Bus
UID	User Token
WAN	Wide Area Network
WiFi	also Wi-fi, Wifi, or wifi from _Wi_reless _Fi_delity

4. Release Version Overview

The goal of the Secure Content Exchange (SCE) Enabler is to extend OMA DRM v2 to enable seamless sharing of purchased content between multiple devices, including all the devices owned by a subscriber (phone, PC, home electronics system, car audio system, etc) and the ad hoc sharing of content with any device the user encounters in unplanned or impromptu situations. Examples of when ad hoc sharing may be applicable include users who want to render their content on a television set at a friend's house or in a hotel room while the user is travelling, or a user who wants to borrow DRM content for a period of time. The Ad Hoc Sharing part of the SCE Enabler enforces temporal and proximity based restrictions that are defined by the RI/DA e.g. content can only be shared with a Device that is in close proximity to the subscriber's Device. Because there is no single DRM system deployed across all these different devices, the SCE Enabler also enhances the interoperability between OMA and non-OMA DRM systems by defining an Import function for OMA DRM.

Another goal of the Secure Content Exchange Enabler is to extend OMA DRM with the capability of using an MPEG-2 transport stream as a container of DRM Content. In OMA DRM v2 the use of DCF and PDCF is defined as container for DRM Content. The SCE Enabler defines that also an MPEG-2 Transport Stream can be used as a container of DRM Content. The objective is to allow consumption of received digital broadcast content as DRM Content by OMA DRM Devices, presuming that a Rights Issuer provides an associated Rights Object for such consumption.

4.1 Version 1.0 Functionality

The SCE 1.0 Enabler extends DRM v2 with the following:

- Flexible rights transfer and DRM domain management, which involves enhancements to OMA DRM v2 for flexible sharing of content between OMA DRM conformant devices; and
- DRM interoperability, which addresses content exchange between OMA DRM and non-OMA DRM conformant devices,
- Capability of using an MPEG-2 transport stream as a container of DRM Content.

These extensions are complementary, since they address different aspects of secure content exchange, and it is expected that some of the technical solutions developed by the SCE work will be used in multiple extensions.

The enhancements specified by the SCE Enabler provide the following benefits to subscribers, Content Providers and operators:

- Subscribers benefit from increased flexibility to share and render their content in ways that were previously not possible. They perceive a level of convenience in their digital media service which rivals the user experience offered by physical media such as CDs and DVDs, which can be played on any device available.
- Content providers benefit from an increase in content purchases, while enjoying the protection against content piracy that DRM provides.
- The added appeal of flexible sharing to subscribers makes the operator's mobile digital media service competitive with wireline-based services and physical media, resulting in an increase in the number of service subscribers and content purchases (and hence an increase in operator revenue).

5. Document Listing for SCE 1.0

This section is normative.

Doc Ref	Permanent Document Reference	Description
Requirement Document		
[SCE -RD]	OMA-RD-SCE-V1_0-20081209-C	Requirement Document for SCE Enabler
Architecture Document		
[SCE AD]	OMA-AD-SCE-V1_0-20081209-C	Architecture Document for SCE Enabler
Technical Specifications		
[SCE-GEN]	OMA-TS-SCE_GEN-V1_0-20081209-C	The Generic Mechanisms Technical Specification
[SCE-DRM]	OMA-TS-SCE_DRM-V1_0-20081209-C	The Digital Rights Management Technical Specification
[SCE-LRM]	OMA-TS-SCE_LRM-V1_0-20081209-C	The Local Rights Management Technical Specification
[SCE-DOM]	OMA-TS-SCE_DOM-V1_0-20081209-C	The User Domain Technical Specification
[SCE-A2A]	OMA-TS-SCE_A2A-V1_0-20081209-C	The Agent to Agent Technical Specification
[SCE-REL]	OMA-TS-SCE_REL-V1_0-20081209-C	The Rights Expression Language Technical Specification
[SCE-MDCF]	OMA-TS-SCE_MDCF-V1_0-20081209-C	The MPEG-2 DRM Content Format Technical Specification
Supporting Files		
[SCE-ROAP-SUP]	OMA-SUP-XSD_SCE_ROAP-V1_0-20081209-C	The ROAP Supporting Files
[SCE-DOM-SUP]	OMA-SUP-XSD_SCE_DOM-V1_0-20081209-C	The User Domain Supporting Files
[SCE-GEN-SUP]	OMA-SUP-XSD_SCE_GEN-V1_0-20081209-C	The Generic Mechanisms Supporting Files
[SCE-REL-DD-SUP]	OMA-SUP-XSD_SCE_REL_DD-V1_0-20081209-C	The Rights Expression Language Supporting Files
[SCE-REL-EX-SUP]	OMA-SUP-XSD_SCE_REL_EX-V1_0-20081209-C	The Rights Expression Language Supporting Files
[SCE-REL-ODD-SUP]	OMA-SUP-XSD_SCE_REL_ODD-V1_0-20081209-C	The Rights Expression Language Supporting Files
[SCE-LRM-SUP]	OMA-SUP-XSD_SCE_LRM-V1_0-20081209-C	The Local Rights Management Supporting Files

Table 1: Listing of Documents in SCE 1.0 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 [SCRRULES].

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

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

7. ERDEF for SCE 1.0 - Client Requirements

This section is normative.

Item	Feature / Application	Requirement
OMA-ERDEF-SCE-C-001-<<M/O>>	SCE Client	

Table 2: ERDEF for SCE 1.0 Client-side Requirements

8. ERDEF for SCE 1.0 - Server Requirements

This section is normative.

Item	Feature / Application	Requirement
OMA-ERDEF-SCE-S-001-<<M/O>>	SCE Server	

Table 3: ERDEF for SCE 1.0 Server-side Requirements

Appendix A. Change History (Informative)

A.1 Approved Version History

Reference	Date	Description
n/a	n/a	No prior version

A.2 Draft/Candidate Version SCE 1.0 History

Document Identifier	Date	Sections	Description
Draft Versions OMA-ERELD-SCE-V1_0	28 Jan 2008	All sections	First draft
	21 Feb 2008	5	Update with the SCE AD and all SCE TSs
	14 Nov 2008	5	Update with the SCE AD, RD and all SCE TSs
	17 Nov 2008	5	Update with the last versions of the SCE AD, RD and all SCE TSs
Candidate Version OMA-ERELD-SCE-V1_0-20081209-C	09 Dec 2008	n/a	Status changed to Candidate by TP TP ref# OMA-TP-2008-0475-INP_SCE_V1_0_ERP_for_Candidate_Approval