Enabler Test Report

Digital Rights Management v2.0

OMA TestFest (January 2008)
Version 1st February 2008

Open Mobile Alliance
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Contents

1. Scope

This report describes the results from the testing carried out at OMA TestFest-22 (January 2008) concerning the Digital Rights Management Version 2.0 Enabler.

2. References

2.1 Normative References

[IOPPROC]	OMA Interoperability Policy and Process, 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
[ERELD]	Enabler Release Definition for Digital Rights Management, OMA-ERELD-DRM-V2_0-20060303-A, http://www.openmobilealliance.org/
[DRM_SPEC]	Enabler Release Package for Digital Rights Management, OMA-ERP-DRM-V2_0-20060303-A, http://www.openmobilealliance.org/
[ETP]	Enabler Test Plan for Digital Rights Management, OMA-ETP-DRM_V2_0-20050818-A, http://www.openmobilealliance.org/
[ETS]	Enabler Test Specification for Digital Rights Management (Interoperability), OMA-ETS-DRM_INT-V2_0-20061020-C, http://www.openmobilealliance.org/
[DRM_EICS]	Enabler Implementation Conformance Statements, OMA-EICS-Client-DRM-V2_0-20051215-A, and OMA-EICS-Server-DRM-V2_0-20051215-A; URL:http://www.openmobilealliance.org/

2.2 Informative References

[OMADICT]	Dictionary for OMA Specification, OMA-Dictionary http://www.openmobilealliance.org/
[OMAADDRM]	http://www.openmobilealliance.org/

3. Terminology and Conventions

3.1 Conventions

This is an informative document, i.e. the document does not intend to contain normative statements.

3.2 Definitions

Asset	Content governed by rights. See DRM content.
Combined delivery	Delivery of the rights object and content together in a single message. See DRM message.
Composite object	A DCF that contains one or more DCFs by means of inclusion e.g. DRM messages, zip files.
Content	A DCF
DRM Agent	A mobile device consuming DRM content.
DRM agent	A user agent in the device that enforces the rights and controls the consumption of DRM content on the device.
DRM content	Content that is consumed according to a set of rights. DRM content may be in encrypted DRM Content Format or in plaintext delivered inside a DRM message
DRM message	A message containing a DCF and an optional rights object. DCFs received inside a DRM message must not leave the device. The optional rights object defines additional consumption rules for the DCF.
Forward-lock	A special case of combined delivery method where the DRM message includes only the DCF and not a rights object at all. A set of default rights applies for the DCF.
DCF	A digital resource e.g. a ringing tone, a screen saver, a Java game or a composite object.
Media type	A MIME media type.
Rights	Permissions and constraints defining under which circumstances access is granted to DRM content.
Rights issuer	An entity who issues rights objects.
Rights object	An instance of rights
Separate delivery	Delivery of the rights object and content via separate transports.
Superdistribution	A mechanism that (1) allows the end user to redistribute the encrypted DRM content to other end users through potentially insecure channels and (2) enables the receipients to obtain initial rights for the superdistributed DRM content.
TestFest	Multi-lateral interoperability testing event
Trusted Zone	An OMA staff function to provide a neutral confidential information and results collection service to OMA Members. The Trusted Zone is responsible for all reports resulting from an OMA Test Event and to ensure that all general reports cannot attributed to any one individual participating company

3.3 Abbreviations

CEK	Content Encryption Key
DCF	DRM Content Format
DRM	Digital Rights Management
EICS	Enabler Implementation Conformance Statement
ERELD	Enabler Release Definition
ERP	Enabler Release Package

ETG	Enabler Test Guidelines
ETS	Enabler Test Specification
HTTP	Hypertext Transfer Protocol
INC	Inconclusive
MIME	Multipurpose Internet Mail Extensions
N/A	Not Applicable
OMA	Open Mobile Alliance
OT	Out of Time
PR	Problem Report
RD	Requirements Document
REL	Rights Expression Language
RI	Rights Issuer
RO	Rights Object
ROAP	Rights Object Acquisition Protocol
SCR	Static Conformance Requirement
TC	Test Case
URI	Universal Resource Identifier
WAP	Wireless Application Protocol
WSP	Wireless Session Protocol

4. Summary

This report gives details of the testing carried out during the OMA TestFest-22 (Janaury 2008) for Digital Rights Management (DRM) v2.0.

The report is compiled on behalf of OMA by the OMA Trusted Zone.

The work and reporting has followed the OMA IOP processes and policies [IOPPROC].

5. Test Details

5.1 Documentation

This chapter lists the details of the enabler and any documentation, tools or test suites used to prove the enabler.

Date:	18th to 25th January 2008
Location:	Montréal, Canada
Enabler:	Digital Rights Management v2.0
Process:	OMA Interoperability Policy and Process [OMAIOPPROC]
Type of Testing	Interoperability Testing
Products tested:	Client-to-server
Test Guidlines:	DRM Enabler Test Plan - OMA-ETP-DRM-V-2_0-20050818-A [ETP]
Test Specification:	DRM Enabler Test Specification - OMA-ETS-DRM_INT-V2_0-20061020-C [ETS]
Test Tool:	None
Test Code:	None
Type of Test event:	TestFest
Participants:	Irdeto and 3 other participants
Number of Client Implementations:	2
Participating Technology Providers for clients:	Irdeto and 1 other participant
Implementation IDs for each client:	OMA DRM Client 2.0 and 1 other implementation.
Number of Server Implementations:	2
Participating Technology Providers for servers:	2 companies
Implementation IDs for each server:	2 implementations
Number of test sessions completed:	4

Table 1. Test Information

5.2   Test Case Statistics

5.2.1   Test Case Summary

This chapter gives an overview of the result for all test cases included in [ETS].

The following status is used in the tables below:

- Total number of TCs: Used in the summary to indicate how many test cases there are in total.

- Number of passed: Used in the summary to indicate how many of the total testcases that successfully has been passed.

- Number of failed: Used in the summary to indicate how many of the total testcases that has failed.

- Number of N/A: Used in the summary to indicate how many of the total testcases that has not be run due to that the implementation(s) do not support the functionality required to run this test case.

- Number of OT: Used in the summary to indicate how many of the total testcases that has not be run due to no time to run the test case.

- Number of INC: Used in the summary to indicate how many of the total testcases that has not been run due to that the functionality could not be tested due to an error in the implementation in another functionality that is required to run this test case.

Test Section:	Number of test sessions:	Total number of TCs:	Number of Passed:	Number of Failed:	Number of N/A:	Number of OT:	Number of INC:	Total:
Client to Server TCs	4	65	138	1	111	10	0	260
Total	**4**	**65**	**138**	**1**	**111**	**10**	**0**	**260**

Table 2. Test Summary Table

5.2.2   Test Case List

This chapter lists the statistics for all all interoperability test cases included in [ETS].

The following status is used in the tables below:

- **Runs (R)**: Used to indicate the total number of times the test case have been run (R = P + F + I).

- **Pass (P):** Used to indicate how many times the test case have been run and successfully passed.

- **Fail (F):** Used to indicate how many times the test cases have been run and failed (used when the failure reason is known).

- **Inconclusive (I)**: Used to indicate how many times the test cases have been run and did not pass due to other nature than conclusive implementation or specification failure (e.g.: the failure reason cannot be clearly determined).

- **Not Applicable (N/A):** Used to indicate how many times the test cases have not be run due to lack of support for the required functionality to run this test case by one or more involved implementations.

- **Out of Time (O):** Used to indicate how many times the test cases have not been run due to lack of time.

- **Problem Report (PR):** Used to indicate how many PRs have been issued for the test case.

- **Note:** Used to indicate the cause of the Inconclusive or Failed results.

Tests for Digital Rights Management TestFest Taken From ETS
OMA-ETS-DRM_INT-V2_0-20061020-C.doc

Test Case id:	Description:	Test Counts						PR:	Note:
		R	P	F	O	I	N/A		
DRM-2.0-int-1	To test "Forward Lock" DRM 1.0 functionality.	4	4	0	0	0	0		
DRM-2.0-int-2	To test DRM 1.0 "Combined Delivery" functionality.	4	4	0	0	0	0		
DRM-2.0-int-3	To test DRM 1.0 "Separate Delivery" functionality in case the DCF file indicates that the server intends to push the rights object separately.	4	4	0	0	0	0		
DRM-2.0-int-4	Test the 4-pass ROAP Registration protocol. The DRM Agent will register with the RI and then complete 2-pass RO Acquisition to prove that the registration was processed successfully.	4	4	0	0	0	0		

Test Case id:	Description:	Test Counts						PR:	Note:
		R	P	F	O	I	N/A		
DRM-2.0-int-5	Test the 4-pass Registration protocol when there is already an RI Context stored on the device, and a device context stored on the RI. RO Acquisition is used to prove that the re-registration is succesfull.	4	4	0	0	0	0		
DRM-2.0-int-6	RO Acquisition without existing RI Context	4	4	0	0	0	0		
DRM-2.0-int-7	1-pass RO Acquisition with existing RI Context.	2	2	0	0	0	2		
DRM-2.0-int-8	1-pass RO Acquisition without existing RI Context.	2	2	0	0	0	2		
DRM-2.0-int-9	Server-initiated Device Time Synchronization	4	3	1	0	0	0		
DRM-2.0-int-10	To test a situation where an RO is included in the DCF.	3	3	0	0	0	1		
DRM-2.0-int-11	To test behaviour in the presence of a group RO for multiple DCFs, using the Group ID mechanism.	2	2	0	0	0	2		
DRM-2.0-int-12	To test behaviour in the presence of an individual RO for a content item which has a Group ID.	2	2	0	0	0	2		
DRM-2.0-int-13	To test behaviour in the presence of several rights objects for one piece of content.	4	4	0	0	0	0		
DRM-2.0-int-14	To test behaviour in the presence of several rights objects for one piece of content.	4	4	0	0	0	0		
DRM-2.0-int-15	To test DRM Agent's capability to process Multipart DCFs from the RI.	1	1	0	0	0	3		
DRM-2.0-int-16	To test behaviour in the presence of multiple ROs for a multipart DCF.	1	1	0	0	0	3		
DRM-2.0-int-17	To test behaviour when different content items in a multipart DCF are associated with different groups	1	1	0	0	0	3		

Test Case id:	Description:	Test Counts						PR:	Note:
		R	P	F	O	I	N/A		
DRM-2.0-int-18	To test "Superdistribution" functionality. The protected content is sent from one DRM Agent to another. The rights object is obtained by ROAP session to the rights issuing service.	4	4	0	0	0	0		
DRM-2.0-int-19	To test the TransactionID mechanism in connection with Superdistribution.	3	3	0	0	0	1		
DRM-2.0-int-20	To test <display> and <print> permissions.	3	3	0	0	0	1		
DRM-2.0-int-21	To test <play> permission.	4	4	0	0	0	0		
DRM-2.0-int-22	To test <execute> permission.	2	2	0	0	0	2		
DRM-2.0-int-23	To test <count> constraint for a DCF.	4	4	0	0	0	0		
DRM-2.0-int-24	To test <timed-count> constraint for a DCF.	1	1	0	0	0	3		
DRM-2.0-int-25	To test <datetime> constraint for a DCF.	4	4	0	0	0	0		
DRM-2.0-int-26	To test <interval> constraint for a DCF.	4	4	0	0	0	0		
DRM-2.0-int-27	To test <accumulated> constraint for a DCF.	2	2	0	0	0	2		
DRM-2.0-int-28	To test <individual> constraint for a DCF.	1	1	0	0	0	3		
DRM-2.0-int-29	To test <system> constraint for a DCF.	2	2	0	0	0	2		
DRM-2.0-int-30	To test the effect of having multiple constraints.	2	2	0	0	0	2		
DRM-2.0-int-31	To test the REL Permission Model in the case that the rights include a stateful top level constraint.	2	2	0	0	0	2		
DRM-2.0-int-32	Initiate ROAP from DCF Preview Header with existing RI Context & domain name NOT in Domain Name Whitelist.	2	2	0	0	0	2		

Test Case id:	Description:	Test Counts						PR:	Note:
		R	P	F	O	I	N/A		
DRM-2.0-int-33	Initiate ROAP from DCF Preview Header with existing RI Context & domain name in the Domain Name Whitelist.	2	2	0	0	0	2		
DRM-2.0-int-34	To test inheritance model when stateful constraints are involved.	3	3	0	1	0	0		
DRM-2.0-int-35	To test a case where the Parent Rights Object	3	3	0	1	0	0		
DRM-2.0-int-36	To test inheritance model when a child RO is a group RO	2	2	0	0	0	2		
DRM-2.0-int-37	Trigger-initiated domain join without existing RI Context	4	4	0	0	0	0		
DRM-2.0-int-38	Trigger-initiated domain join with valid RI Context and no existing Domain Context for this RI.	4	4	0	0	0	0		
DRM-2.0-int-39	Automatically-initiated domain upgrade with valid RI Context and existing Domain Context for this RI A Domain RO is delivered before the DRM Agent has upgraded the domain.	3	3	0	0	0	1		
DRM-2.0-int-40	Trigger-initiated domain join with valid RI Context and existing Domain Context for this RI RI-initiated domain generation upgrade	3	3	0	1	0	0		
DRM-2.0-int-41	Domain RO Acquisition with existing RI Context.	4	4	0	0	0	0		
DRM-2.0-int-42	To test delivering the DomainRO inside a DCF.	3	3	0	1	0	0		
DRM-2.0-int-43	To test if different devices related with the same domain are able to share DCFs.	2	2	0	1	0	1		
DRM-2.0-int-44	Device leaves a domain after receiving a LeaveDomain trigger.	4	4	0	0	0	0		
DRM-2.0-int-45	Initiate ROAP from DCF Silent Header with existing RI Context and domain name NOT in Domain Name Whitelist.	3	3	0	1	0	0		

Test Case id:	Description:	Test Counts						PR:	Note:
		R	P	F	O	I	N/A		
DRM-2.0-int-46	Initiate ROAP from DCF Silent Header with existing RI Context and domain name NOT in Domain Name Whitelist.	2	2	0	1	0	1		
DRM-2.0-int-47	To test a local backup of content and rights object.	1	1	0	0	0	3		
DRM-2.0-int-48	Device registration and domain establishment for Unconnected Device.	0	0	0	0	0	4		
DRM-2.0-int-49	RO Acquisition with existing RI Context.	0	0	0	0	0	4		
DRM-2.0-int-50	Unconnected Device leaving domain.	0	0	0	0	0	4		
DRM-2.0-int-51	RO Acquisition without existing RI Context	0	0	0	0	0	4		
DRM-2.0-int-52	To test Datetime constraints with an unconnected device that does not have a time source (i.e. a situation where the constraint is not understood and cannot be enforced).	0	0	0	0	0	4		
DRM-2.0-int-53	Tests the capability of the ROAP protocol in the case that a DRM Agent has two device certificates. This may reflect a scenario where a device is a member of two PKI ecosystems.	2	2	0	1	0	1		
DRM-2.0-int-54	Tests the capability of the ROAP protocol to choose and communiate the correct RI public key in the case that a Rights Issuer has two RI certificates. This may reflect a scenario where a Rights Issuer support two PKI ecosystems.	3	3	0	1	0	0		

Test Case id:	Description:	Test Counts						PR:	Note:
		R	P	F	O	I	N/A		
DRM-2.0-int-55	Tests the capability of the ROAP protocol to allow registration in the case that the RI and Device have certificates from different trust models, but do trust the "other" trust model. Essentially Device has a certificate chain from PKI_A and additionally trusts PKI_B, RI has chain from PKI_B and additionally trusts PKI_A. The RI and Device should be able to trust each other even though they have certificate chains from different trust authorities.	1	1	0	1	0	2		
DRM-2.0-int-56	To test packaging and rendering of a one-track null-encrypted PDCF file (e.g 3GP audio).	0	0	0	0	0	4		
DRM-2.0-int-57	To test packaging and rendering of a one-track encrypted PDCF (e.g audio file).	0	0	0	0	0	4		
DRM-2.0-int-58	To test packaging and rendering of a multi-track encrypted PDCF (e.g. video and audio 3GP file).	0	0	0	0	0	4		
DRM-2.0-int-59	To test PDCF superdistribution, using the Transaction Tracking mechanism.	0	0	0	0	0	4		
DRM-2.0-int-60	To test rendering of a multi-track encrypted PDCF where rights are only available for one of the tracks.	0	0	0	0	0	4		
DRM-2.0-int-61	To test the behaviour in the presence of a group RO for a PDCF, using the GroupID mechanism.	0	0	0	0	0	4		
DRM-2.0-int-62	To test a situation where a Domain RO is included in a PDCF.	0	0	0	0	0	4		
DRM-2.0-int-63	To test packaging, **streaming** and rendering of a one-track PDCF.	0	0	0	0	0	4		

Test Case id:	Description:	Test Counts						PR:	Note:
		R	P	F	O	I	N/A		
DRM-2.0-int-64	To test SDP intitated Rights Object acquisition; and the subsequence packaging, streaming and rendering of a one-track PDCF (*SelectiveEncryption* enabled).	0	0	0	0	0	4		
DRM-2.0-int-65	To test a multi-track PDCF streamable packaging and rendering, *SelectiveEncryption enabled*. Some packets are encrypted and others are unencrypted.	0	0	0	0	0	4		

Table 3. Test Case Counts

5.3   Problem Reports

During the activities for TestFest-22, the following problem reports were generated relating to the test materials and test process:

PR Number	Affecting	Description	Test Case reference / Specification reference
		None raised from this event	

Table 4. Problem Reports

Full details of the Problem Reports can be found at:

   http://www.openmobilealliance.org/TestFests/Problem_Reporting.aspx

6. Confirmation

This signature states that the included information is true and valid.

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OMA Trusted Zone

Appendix A.   Change History   (Informative)

Type of Change	Date	Section	Description
Initial Release	1st February 2008	All	First Version from TestFest-22