
Open Digital Rights Management

A Position Paper for the W3C DRM Workshop

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1 Introduction

Digital Rights Management (DRM) involves the description, layering, analysis, valuation, trading and monitoring of the rights over an enterprise's assets; both in physical and digital form; and of tangible and intangible value. DRM covers the digital management of rights - be they rights in a physical manifestation of a work (eg a book), or be they rights in a digital manifestation of a work (eg an ebook). Current methods of managing, trading and protecting such assets are inefficient, proprietary, or else often require the information to be wrapped or embedded in a physical format [HIGGS].

A key feature of managing online rights will be the substantial increase in re-use of digital material on the Web as well as the increased efficiency for physical material. The pervasive Internet is changing the nature of distribution of digital media from a passive one way flow (from Publisher to the End User) to a much more interactive cycle where creations are re-used, combined and extended ad infinitum. At all stages, the Rights need to be managed and honoured with trusted services.

2 Open DRM Framework

Traditional DRM (even though it is still a new discipline) has predominately taken a closed approach to solving problems. That is, DRM has primarily focused on the *content protection* issues more than the *rights management* issues. Some argue that this skew in emphasis towards content protection diminish the rights of the end users, as well as content creators.

Hence, we see a movement towards "Open Digital Rights Management" (ODRM) with clear principles focused on interoperability across multiple sectors and support for fair-use doctrines.

The ODRM Framework consists of Technical, Business, Social, and Legal streams as shown in Figure 1.

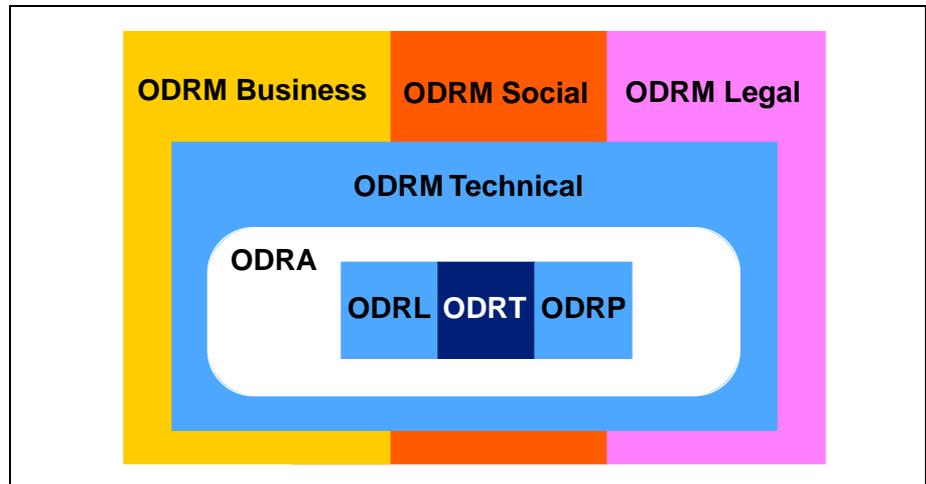


Figure 1. ODRM Framework

The ODRM Technical stream consists of an Architecture (ODRA) which includes a Trading Protocol (ODRT) and Protection (ODRP) mechanisms with the Language (ODRL) clearly focused on solving a common and extendable way of expressing Rights assertions within this Architecture.

The ODRM Architecture exists in other forms that are specific to other communities needs, such as Privacy metadata (P3P). Hence, ODRA can be achieved by abstracting and reusing such architectures to enable trusted metadata expressions about digital assets. This relates to the overall Web Architecture (ie the W3C's Semantic Web) where specific metadata (such as P3P and CC/PP) also needs to accommodate DRM metadata. The best way to do this is to design the Web Architecture with this ability - where any metadata can be expressed, understood, trusted, and exchanged.

It is envisaged that a rights language (ODRL) will “plug into” an open framework that enables peer-to-peer interoperability for DRM services. See [ERICKSON] for an overview of this area. However, ODRL can also be used as an mechanism to express rights statements on its own and to plug into existing DRM architectures, for example, the Electronic Book Exchange [EBX] framework.

3 DRM Metadata Model

Modelling for DRM is extremely important as it is paramount that the model support any and all rights holders over digital assets. Hence, the metadata behind DRM needs to be effectively modelled and reflect industry practice. Such metadata covers the description of Parties, the Content, and the Rights. As can be seen in Figure 2, the metadata model is built on these three core entities and expansions based on the content types, party types, and sector requirements.

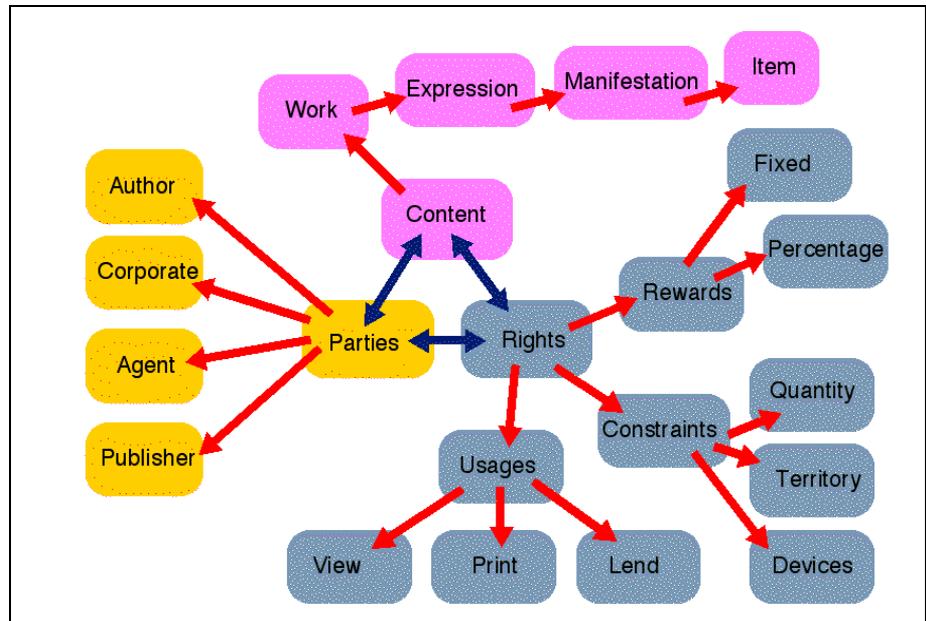


Figure 2. DRM Metadata Model

4 ODRL Language

The ODRL is a standard vocabulary for the expression of terms and conditions over assets. ODRL covers a core set of semantics for these purposes including the rights holders and the expression of permissible usages for asset manifestations. Rights can be specified for a specific asset manifestation or could be applied to a range of manifestations of the asset.

ODRL does not enforce or mandate any policies for DRM, but provides the mechanisms to express such policies. Communities or organisations, that establish such policies based on ODRL, do so based on their specific business or public access requirements.

ODRL depends on the use of unique identification of assets (eg URI, ISBN, DOI). This is a very difficult problem to address and to have agreement across many sectors and is why identification mechanisms and policies of the assets is outside the scope of ODRL. Sector-specific versions of ODRL may address the need infer information about the asset manifestation from its unique identifier.

The ODRL model is based on an analysis and survey of sector specific requirements (models and semantics), and as such, aims to be compatible with a broad community base. ODRL aims to meet the common requirements for many sectors and has been influenced by the ongoing work and specifications/models of the following groups:

- <indec> [INDECS]
- Electronic Book Exchange [EBX]
- IFLA
- DOI Foundation [DOI]
- ONIX International [ONIX]

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- MPEG
 - IMS
 - Propagate Project [PROPAGATE]
 - AAP
 - OpenEBook Forum [OEBF]

ODRL proposes to be compatible with the above groups by defining an independent and extensible set of semantics. ODRL does not depend on any media types as it is aimed for cross-sector interoperability.

Complete details on ODRL can be found at [ODRL].

5 W3C Role

IPR Systems believes strongly in the role that W3C must take in delivering on its promise of “Leading the Web to its Full Potential...”. W3C should address the issue of Rights as this is paramount to delivering on this promise.

Solving DRM is a big task, and it will never be solved in its entirety. W3C should review all the aspects of DRM and choose those that it believes it can solve within a suitable timeframe, and develop relationships with groups solving other aspects of DRM.

W3C can play a role today in the expression of Rights languages within a trusted metadata architecture. W3C should develop an architecture for metadata that is easily deployed in which a Rights Language can be plugged in as the “payload”. W3C has the beginning of such an architecture with its P3P and CC/PP work.

W3C can also develop the standard for the expression of Rights languages for use on the Web. In its simplest form, such a language would inform the end user what they can (and cannot) do with the Web resource. At its extreme, the Rights language can inform and control trusted services to honour the expressions it contains. IPR Systems offers ODRL to W3C to jumpstart this process.

W3C should plan on immediately starting the following activities:

- Digital Rights Language (DRL) Working Group - develop the semantics of an cross-sector digital rights language (encoded in XML).
- Trusted Metadata (TM) Working Group - develop a trusted metadata architecture that supports the encoding and transmission of DRM metadata (as well as other W3C metadata).
- DRM Interest Group - to discuss the next steps that W3C should take in developing solutions to the larger DRM issues (such as security, trading protocols, and tracking mechanisms). The IG should also establish strong relationships with other communities developing open DRM solutions.

6 Conclusion

Digital Rights Management on the Web is now emerging as a formidable new challenge. The industry is now demanding that standards be developed to allow interoperability and not to force the content manager to encode their works in proprietary formats. It is important that all communities be heard during this process and W3C is well suited to be the industry and sector neutral place to develop these standards.

7 References

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<<http://www.doi.org/>>
- [EBX] Electronic Book Exchange
<<http://www.ebxwg.org/>>
- [ERICKSON] Toward an Open Rights Management Interoperability Framework, John S Erickson.
<<http://www.oasis-open.org/cover/ericksonRT19990624.pdf>>
- [HIGGS] The Nature of Knowledge and Rights Management Systems, Peter Higgs.
<http://www.iprsystems.com/html/rights_management.html>
- [IFLA] Functional Requirements for Bibliographic Records
<<http://www.ifla.org/VII/s13/frbr/frbr.htm>>
- [IMS] Instructional Management Systems
<<http://www.imsproject.org/>>
- [INDECS] Interoperability of Data in Ecommerce Systems
<<http://www.indecs.org/>>
- [ISBN] International Standard Book Number
- [MPEG] Moving Picture Experts Group (WG 4,7,21)
<<http://www.cselt.it/leonardo/mpeg/>>
- [OEBF] OpenEBook Forum
<<http://www.openebook.org/>>
- [ODRL] Open Digital Rights Language (Version 0.8)
<<http://odrl.net/ODRL-08.pdf>>
- [ONIX] ONIX International V1.1
<<http://www.editeur.org/onix.html>>
- [PROPAGATE] Propagate Project
<<http://www.propagate.net/>>
- [URI] Uniform Resource Identifiers (URI): Generic Syntax
<<http://www.ietf.org/rfc/rfc2396.txt>>