



Open Digital Rights Language (ODRL)

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0 Status

This document is an early draft and a **work-in-progress** and may be updated and/or replaced by other documents at any time.

The intention is to promote this draft document amongst multiple communities interested in the expression of Digital Rights Management statements and semantic interoperability across these communities.

ODRL will be standardised via an appropriate, open, and non-competitive organisation with an open process for the future maintenance of the standard. *ODRL* has no license requirements and is available in the spirit of “open source” software.

Comments are welcome to the editors from all interested parties.

Change Bars indicate modifications from Version 0.5

1 Overview

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.

Current Rights management technologies include languages for describing the terms and conditions, tracking asset usages by enforcing controlled environments or encoded asset manifestations, and closed architectures for the overall management of rights.

The Open Digital Rights Language (*ODRL*) provides the semantics for DRM in open and trusted environments whilst being agnostic to mechanisms to achieve the secure architectures.

1.1 The Bigger Picture

It is envisaged that *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 a mechanism to express rights statements on its own and to plug into existing DRM architectures, for example, the Electronic Book Exchange [EBX] framework.

The editors consider that traditional DRM (even though it is still a new discipline) has taken a closed approach to solving problems. That is, the DRM has focused on the *content protection* issues more than the *rights management* issues. 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.

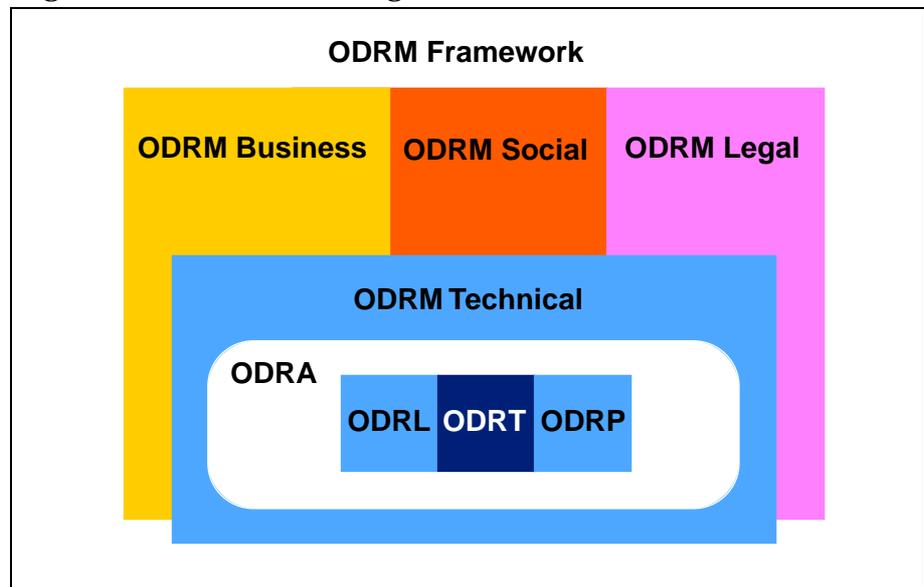


Figure 1. ODRM Framework

The ODRM Technical stream consists of an Architecture (ODRA), Trading Protocol (ODRT) and Protection (ODRP) mechanisms with *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. Hence, ODRA can be

achieved by abstracting and reusing such architectures to enable trusted metadata expressions about digital assets.

1.2 About this Specification

This document, along with its normative references, includes all the specification necessary for the implementation of interoperable *ODRL* applications.

The key words *must*, *must not*, *required*, *shall*, *shall not*, *should*, *should not*, *recommended*, *may*, and *optional* in this specification are to be interpreted as described in [RFC2119] which defines the significance of each particular requirement.

Examples used in this document are for demonstration purposes only.

2 ODRL

ODRL complements existing analogue rights management standards by providing digital equivalents, and supports an expandible range of new services that can be afforded by the digital nature of the assets in the Web environment. In the physical environment, *ODRL* can be used to enable machine-based processing for Rights management.

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 (format) or could be applied to a range of manifestations of the asset.

2.1 Scope

ODRL is focused on the semantics of expressing rights languages. *ODRL* can be used within trusted or untrusted systems for both digital and physical assets. However, *ODRL* does not determine the capabilities nor requirements of any trusted services (eg for content protection, digital/physical delivery, and payment negotiation) that utilises its language. Clearly, however, *ODRL* will benefit rights transactions over digital assets as these can be captured and managed as a single transaction. In the physical world, *ODRL* expressions would need an accompanying system with the distribution of the physical asset.

ODRL defines a core set of semantics. Additional semantics can be layered on top of *ODRL* for third-party value added services.

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. 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 to infer information about the asset manifestation from its unique identifier.

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:

- <indecs> [INDECS]
- Electronic Book Exchange [EBX]
- IFLA
- DOI Foundation [DOI]
- ONIX
- MPEG
- IMS
- Dublin Core Metadata Initiative [DCMI]

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.

2.2 Foundation Model

ODRL is based on a simple, yet extensible, model for rights management which involves the clear separation of Parties, Assets, and Rights descriptions. This is shown in Figure 2.

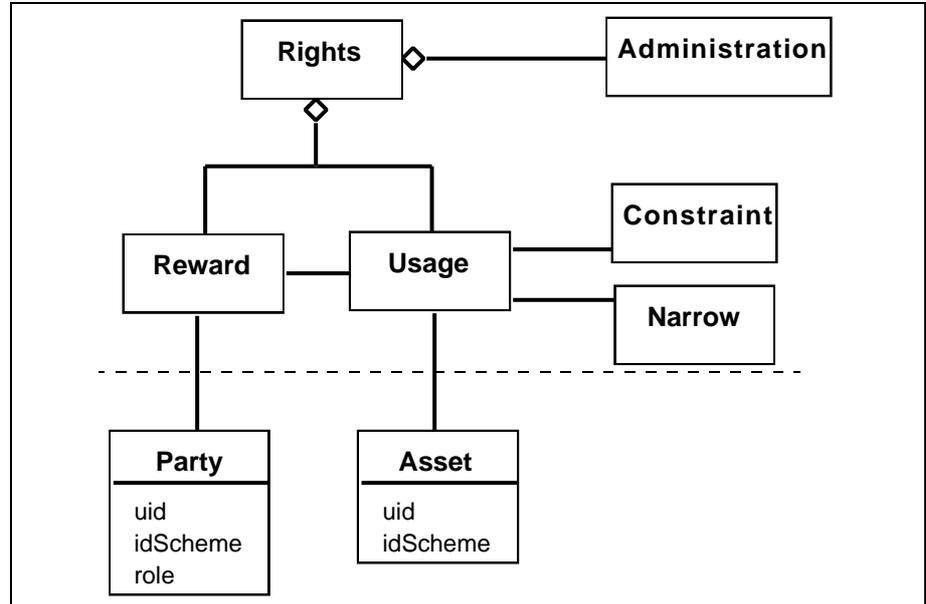


Figure 2. ODRL Foundation Model

The **Rights** entity consists of **Usage**, **Constraint**, **Narrow**, and **Reward** which together enable the expression of digital rights over the identified **Asset** and their **Rights Holders** (parties). The **Parties'** Role with respect to their **Rewards** can also be expressed.

The description of the **Party** and **Asset** entities is outside the scope of *ODRL*. What is in scope is that these entities must be referenced by

using unique identification mechanisms (such as [URI], [DOI], [ISBN] etc).

The Asset entity (sometimes referred to as a Work, Content, Creation, or Intellectual Property), is viewed as a whole entity. If the Rights are assigned at the Asset's subpart level, then such parts would require to also be uniquely identifiable. However, *ODRL* can specify constraints on subparts of the asset.

The Rights entity also consists of an Administration entity that captures the responsible parties and valid dates of the Rights expression.

Complete and formal semantics for the *ODRL* Foundation Model properties and attributes are specified in Section 3.1 "Foundation Semantics" on page 12.

2.2.1 Example

The *ODRL* Foundation Model can be expressed using XML. A pseudo-example is shown below:

```
<rights>
  <asset>
    <uid idscheme="URI">http://byeme.com/myasset.pdf</uid>
  </asset>
  <usage>
    <usage-type>
      ...
      <constraint> ... </constraint>
    </usage-type>
    <usage-type>
      ...
      <constraint> ... </constraint>
    </usage-type>
    ...
  </usage>
  <narrow> ... </narrow>
  <reward>
    <reward-type>
      <party>
        ...
        <role> ... </role>
      </party>
    </reward-type>
    ...
  </reward>
  <admin>
    <party> ... </party>
    <datetime> .. </datetime>
  </admin>
</rights>
```

Complete and formal syntactical examples are given in Section 4 "Syntax" on page 21.

2.3 Rights Usage Model

ODRL supports the expression of Rights Usages. This is the recognised set of allowable usage rights over the Asset. This is shown in Figure 3.

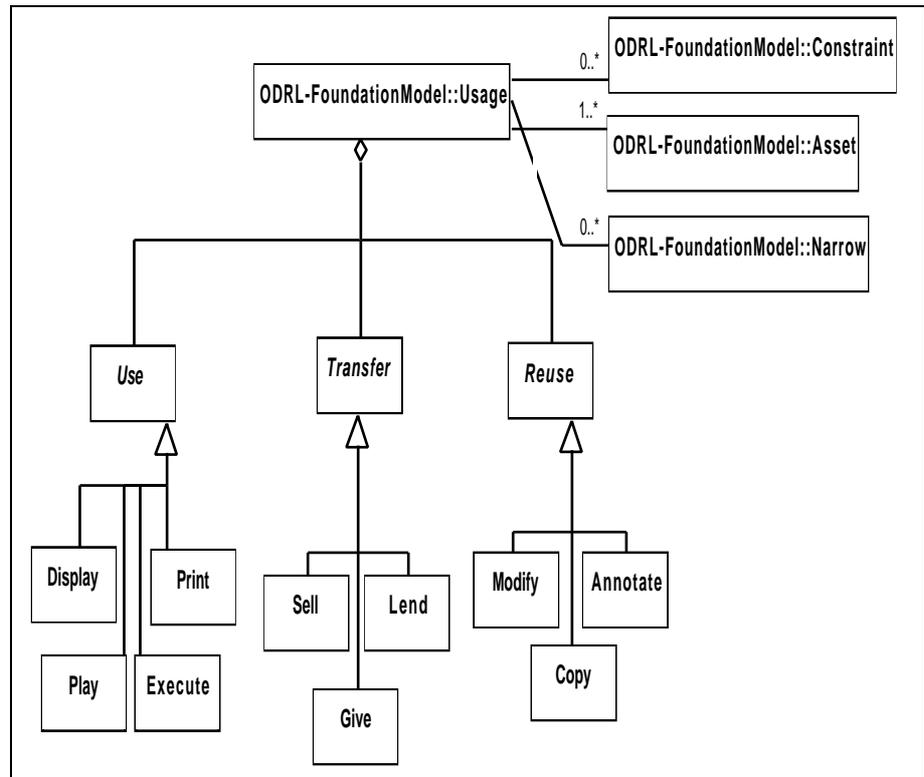


Figure 3. ODRL Usages Model

The Usage entity consists of an aggregation of three abstract entities:

- Use - indicates a set of usages in which the Asset can be consumed (realised with: Display, Print, Play, Execute).
- Transfer - indicates a set of usages in which the rights over the Asset can be transferred (realised with: Sell, Lend, Give).
- Reuse - indicates a set of usages in which the Asset (or portions of it) can be re-utilised (realised with: Modify, Copy, Annotate).

A Usage must be associated with one or more Assets. A Usage can be associated with zero or more Constraints.

Important Note

A Usage Right that is not specified in any Rights Expressions is not granted. That is, no assumptions should be made in regard to Usage Rights if they are not explicitly mentioned.

Additionally, all Usages can be subject to an “Exclusivity” attribute that indicates if the constraint is exclusive or not.

Complete and formal semantics for the ODRL Usage Model properties and attributes are specified in Section 3.2 “Usage Semantics” on page 13.

2.3.1 Example

The *ODRL Usage Model* can be expressed using XML. A pseudo-example is shown below in which the identified asset has display, print (with constraints), and annotate rights.

```
<usage>
  <asset>
    <uid idscheme="URI">http://byeme.com/myasset.pdf</uid>
  </asset>
  <display/>
  <print>
    <constraint> ... </constraint>
  </print>
  <annotate/>
  ...
</usage>
```

Complete and formal syntactical examples are given in Section 4 "Syntax" on page 21.

2.4 Rights Constraint Model

ODRL supports the expression of Rights Constraints. This is the recognised set of restrictions on the usage rights over the Asset. This is shown in Figure 4.

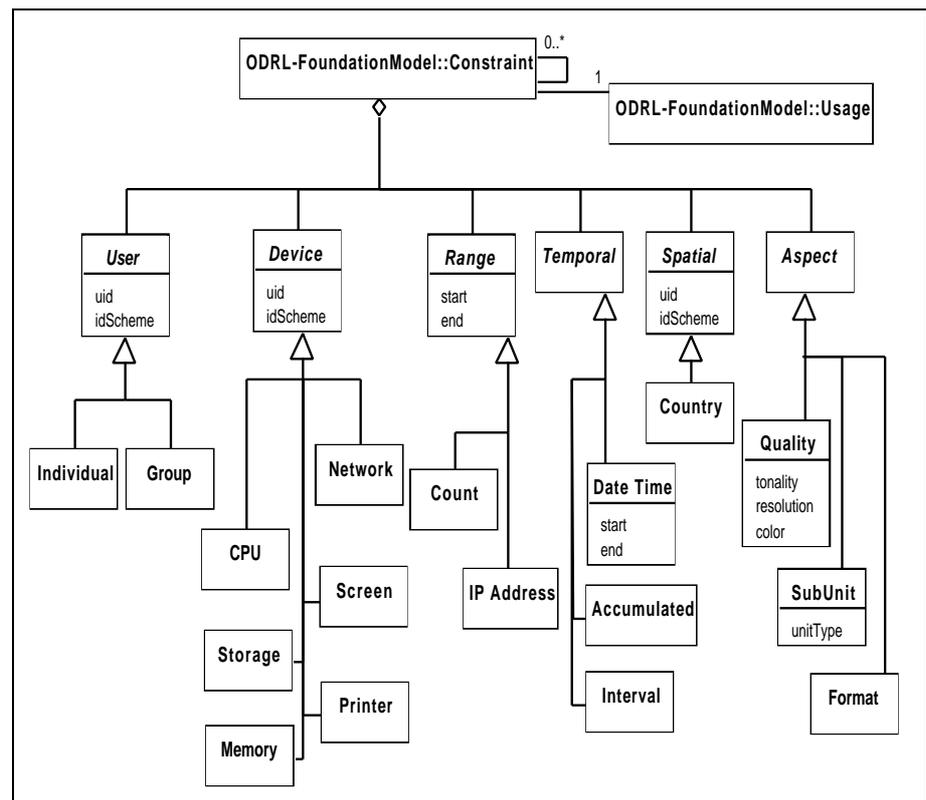


Figure 4. ODRL Constraints Model

The Constraint entity consists of an aggregation of six abstract entities:

- User - indicates a set of constraints which limits usage to identified user(s) (realised with: Individual, Group).

- Device - indicates a set of constraints which limits usage to physical devices (realised with: Network, CPU, Screen, Storage, Printer, Memory).
- Range - indicates a set of constraints which limits usage to a fixed number or extent (realised with: Count, IP Address).
- Temporal - indicates a set of constraints which limits usage to temporal boundaries (realised with: Date Time, Accumulated, Interval).
- Spatial - indicates a set of constraints which limits usage to spatial boundaries (realised with: Country).
- Aspect - indicates a set of constraints which limits usage to distinct features of the asset (realised with: Quality, SubUnit, Format).

Additionally, all Constraints can be subject to an “Exclusivity” attribute that indicates if the constraint is exclusive or not.

A Constraint is associated with one Usages. Constraints can also have zero or more other Constraints.

Important Note

Any Constraint that is expressed but can not be performed by the consuming system, must not be granted. That is, if a system does not understand how to guarantee that a specified constraint be honoured it must not grant the Usage right an all.

Complete and formal semantics for the *ODRL* Constraint Model properties and attributes are specified in Section 3.3 "Constraint Semantics" on page 15.

2.4.1 Example

The *ODRL* Constraint Model can be expressed using XML. A pseudo-example is shown below in which the display usage right is constrained to a particular network within an identified IP address range.

```

<display>
  <constraint>
    <network>
      <constraint>
        <ipaddress start="111.222.333.1" end="111.222.333.255" />
      </constraint>
    </network>
  </constraint>
</display>

```

Complete and formal syntactical examples are given in Section 4 "Syntax" on page 21.

2.5 Rights Narrow Model

ODRL supports the expression of Narrowing of Rights. This is the ability to specify if the current Rights can be modified (narrowed or

removed) when re-issuing a Rights expression. This is shown in Figure 5.

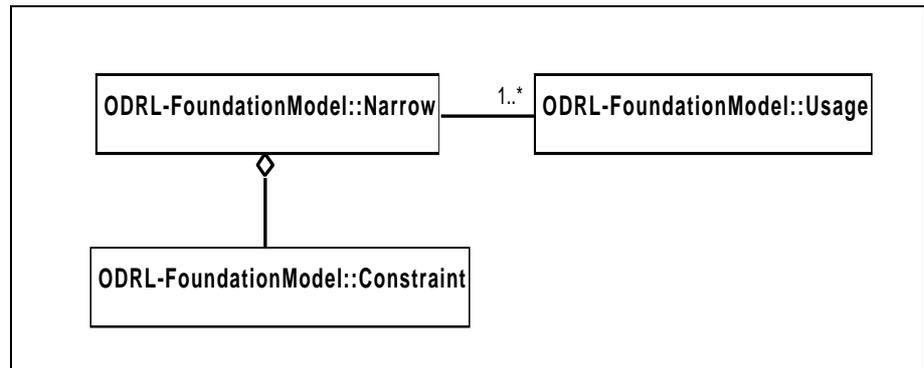


Figure 5. ODRL Narrow Model

The Narrow entity is an aggregation of one other existing entity:

- Constraint - indicates any constraints that the Narrow rights must conform to.

Complete and formal semantics for the *ODRL* Narrow Model properties and attributes are specified in Section 3.4 "Narrow Semantics" on page 20.

2.5.1 Example

The *ODRL* Narrow Model can be expressed using XML. A pseudo-example is shown below in which sell and lend transfer rights exist for the identified asset and narrow rights are applicable and are also constrained to a particular country.

```

<rights>
  <asset>
    <uid idscheme="URI">http://byeme.com/myasset.pdf</uid>
  </asset>
  <usage>
    <sell/>
    <lend/>
  </usage>
  <narrow>
    <constraint>
      <country>
        <uid idscheme="ISO3166"> AU </uid>
      </country>
    </constraint>
  </narrow>
</rights>
  
```

Complete and formal syntactical examples are given in Section 4 "Syntax" on page 21.

2.6 Rights Reward Model

ODRL supports the expression of Rights Rewards. This is the recognised set of rewarding mechanisms for the usage of the Asset and the Rights Holders (parties). This is shown in Figure 6.

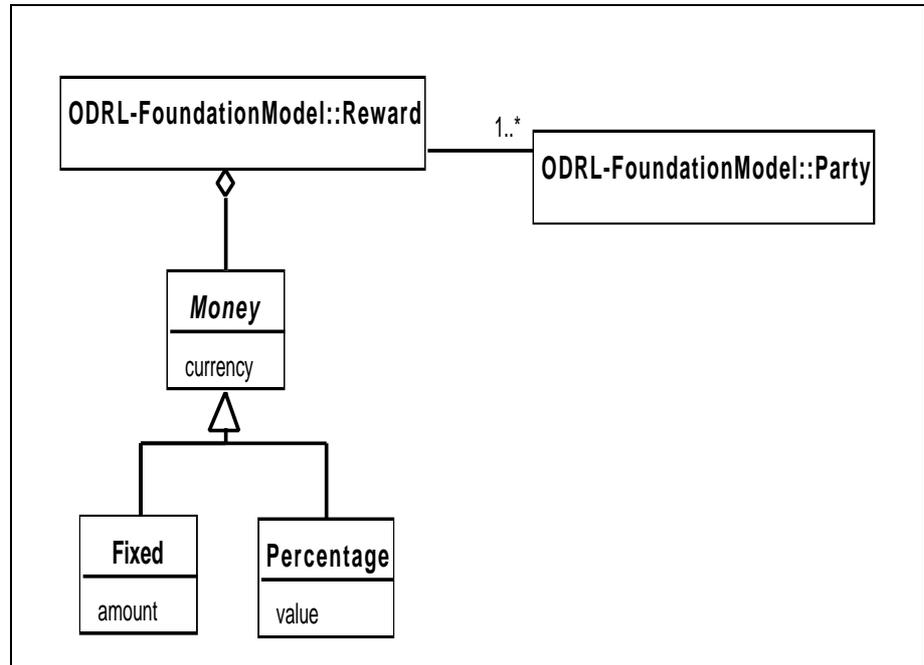


Figure 6. ODRL Rewards Model

The Reward entity is an aggregation of one abstract entity:

- Money - indicates a set of financial rewards associated with the usage of an Asset (realised with: Fixed, Percentage).

One or more Parties must be identified with the Rewards expression. The Role of the Party may also be indicated.

Complete and formal semantics for the ODRL Reward Model properties and attributes are specified in Section 3.5 "Reward Semantics" on page 20.

2.6.1 Example

The ODRL Rewards Model can be expressed using XML. A pseudo-example is shown below in which two identified parties share the financial rewards with 90% to the Author and 10% to the Publisher.

```
<reward>
  <percentage value="90" currency="AUD">
    <party>
      <uid idscheme="X500">c=FOO;o=Federal Library;ou=Registry;
                          cn=Maria Brown</uid>
      <role>Author</role>
    </party>
  </percentage>
  <percentage value="10" currency="AUD">
    <party>
      <uid idscheme="X500"> c=FOO;o=Federal Library;ou=Registry;
                          cn=Bye Me Inc</uid>
      <role>Publisher</role>
    </party>
  </percentage>
</reward>
```

</percentage>
</reward>

Complete and formal syntactical examples are given in Section 4 "Syntax" on page 21.

2.7 Rights Administration Model

ODRL supports the Administrative information about the Rights expression. This is shown in Figure 7.

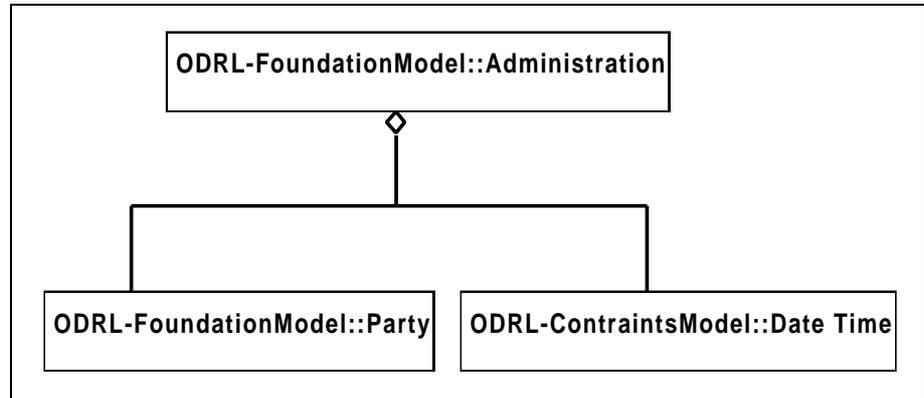


Figure 7. ODRL Administration Model

The Administration entity is an aggregation of two other existing entities:

- Party - indicates who is responsible for maintenance of this Rights expression).
- Date Time - indicates the valid date range for the Rights expression.

Complete and formal semantics for the ODRL Administration Model properties and attributes are specified in Section 3.6 "Administration Semantics" on page 21.

2.7.1 Example

The ODRL Administration Model can be expressed using XML. A pseudo-example is shown below in which the Rights expression is managed by the identified party (the Rights Cataloguer) and is valid for a two year period.

```
<rights>
  <admin>
    <party>
      <uid idscheme="X500"> c=FOO;o=Federal Library;ou=Registry;
                          cn=Maria Brown</uid>
      <role>Rights Cataloguer</role>
    </party>
    <datetime start="2000-01-01" end="2001-12-31"/>
  </admin>
  ...
</rights>
```

Complete and formal syntactical examples are given in Section 4 "Syntax" on page 21.

3 Semantics

This section details the semantics of all the properties and attributes used in the *ODRL* Models.

3.1 Foundation Semantics

Rights

Identifier	rights
Definition	The digital expression of intellectual property rights over an asset
Cardinality	mandatory
Content (entities)	usage reward administration asset narrow

Usage Rights

Identifier	usage
Definition	A defined set of actions or operations allowed over an asset
Cardinality	mandatory
Content (entities)	use transfer reuse

Reward

Identifier	reward
Definition	Any form of value that may be exchanged for agreement to the conditions of the rights expressions
Cardinality	optional
Content (entities)	money party

Asset

Identifier	asset
Definition	Any object (digital or physical) of value which rights can be assigned
Comment	Must be uniquely identifiable
Cardinality	mandatory
Content	uid - unique identifier (entity) idScheme - scheme used for the uid (attribute)

Party

Identifier	party
Definition	An identifiable person or organisation to which rights may be assigned over assets
Comment	Must be uniquely identifiable
Cardinality	optional
Content	uid - unique identifier (entity) idScheme - scheme used for the uid (attribute) role - role played by the party (entity)

3.2 Usage Semantics

Use

Identifier	use
Definition	A set of Usage rights pertaining to the end use of an asset
Comment	This entity is abstract and used to group common Rights Usages.
Cardinality	optional
Content (entities)	display print play execute

Use: Display

Identifier	display
Definition	The act of rendering the asset onto a screen or visual device
Cardinality	optional
Content (entities)	constraint

Use: Print

Identifier	print
Definition	The act of rendering the asset onto paper or hard copy form
Cardinality	optional
Content (entities)	constraint

Use: Play

Identifier	play
Definition	The act of rendering the asset into audio/video form
Cardinality	optional
Content (entities)	constraint

Use: Execute

Identifier	execute
Definition	The act of rendering the asset into machine-readable form
Cardinality	optional
Content (entities)	constraint

Transfer

Identifier	transfer
Definition	A set of Usage rights pertaining to the transfer of ownership of an asset
Comment	This entity is abstract and used to group common Rights Usages
Cardinality	optional
Content (entities)	sell lend give

Transfer: Sell

Identifier	sell
Definition	The act of allowing the asset to be sold for exchange of value
Cardinality	optional
Content (entities)	constraint

Transfer: Lend

Identifier	lend
Definition	The act of allowing the asset to be available for temporary use then returned
Comment	Time-based constraints are required
Cardinality	optional
Content (entities)	constraint (mandatory)

Transfer: Give

Identifier	give
Definition	The act of allowing the asset to be given away (without exchange of value)
Cardinality	optional
Content (entities)	constraint

Reuse

Identifier	reuse
Definition	A set of Usage rights pertaining to the re-utilisation of an asset
Comment	This entity is abstract and used to group common Rights Usages.
Cardinality	optional
Content (entities)	modify copy annotate

Reuse: Modify

Identifier	modify
Definition	The act of changing parts of the asset creating a new asset
Cardinality	optional
Content (entities)	constraint

Reuse: Copy

Identifier	copy
Definition	The act of extracting parts (or all) of the asset for reuse into another asset
Cardinality	optional
Content (entities)	constraint

Reuse: Annotate

Identifier	annotate
Definition	The act of adding notations/commentaries to the asset creating a new asset
Cardinality	optional
Content (entities)	constraint

3.3 Constraint Semantics

Constraint

Identifier	constraint
Definition	A restriction that applies to the Usage of an asset
Cardinality	optional
Content (entities)	user device range temporal spatial aspect

User

Identifier	user
Definition	Any human or organisation
Comment	This entity is abstract and used to group common Constraints
Cardinality	optional
Content (entities)	individual group

User: Individual

Identifier	individual
Definition	An identifiable party acting as an individual
Cardinality	optional
Content	uid - unique identifier (entity) idScheme - scheme used for the uid (attribute)

User: Group

Identifier	group
Definition	A number of identifiable party acting as a collection of individuals
Cardinality	optional
Content	uid - unique identifier (entity) idScheme - scheme used for the uid (attribute)

Device

Identifier	device
Definition	Any electronic or digital equipment
Comment	This entity is abstract and used to group common Constraints
Cardinality	optional
Content (entities)	Network CPU Screen Storage Printer Memory

Device: Network

Identifier	network
Definition	An identifiable data network
Comment	If below attributes are not sufficient, then IP Address Range can also be used to limit the network.
Cardinality	optional
Content	uid - unique identifier (entity) idScheme - scheme used for the uid (attribute)

Device: CPU

Identifier	cpu
Definition	An identifiable system with a central processing unit (CPU)
Cardinality	optional
Content	uid - unique identifier (entity) idScheme - scheme used for the uid (attribute)

Device: Screen

Identifier	screen
Definition	An identifiable display output screen device
Comment	For example, a screen reader or braille device
Cardinality	optional
Content	uid - unique identifier (entity) idScheme - scheme used for the uid (attribute)

Device: Storage

Identifier	storage
Definition	An identifiable storage media device
Comment	For example, a hard disk or removable cartridge
Cardinality	optional
Content	uid - unique identifier (entity) idScheme - scheme used for the uid (attribute)

Device: Printer

Identifier	printer
Definition	An identifiable hard copy printer
Cardinality	optional
Content	uid - unique identifier (entity) idScheme - scheme used for the uid (attribute)

Device: Memory

Identifier	memory
Definition	An identifiable memory device
Comment	For example, the clipboard
Cardinality	optional
Content	uid - unique identifier (entity) idScheme - scheme used for the uid (attribute)

Range

Identifier	range
Definition	The numeric limits within which any entity can function
Comment	This entity is abstract and used to group common Constraints.
Cardinality	optional
Content (entities)	Count IP Address

Range: Count

Identifier	count
Definition	A numeric value range
Comment	If there is no "start" or "end" value, then the range is open-ended. Integer, Floats and negative numbers must be supported. Start/End are also synonyms for Minimum/Maximum.
Cardinality	optional
Content (attributes)	start - the beginning of the range (inclusive) end - the end of the range (inclusive)

Range: IP
Address

Identifier	ipaddress
Definition	A network IP address range
Comment	There must be "start" and "end" values specified. The IP address format must be supported (Eg xxx.xxx.xxx.xxx).
Cardinality	optional
Content (attributes)	start - the beginning of the range (inclusive) end - the end of the range (inclusive)

Temporal

Identifier	temporal
Definition	The time limits within which any entity can function
Comment	This entity is abstract and used to group common Constraints. [ISO8601] Date format must be supported for all values.
Cardinality	optional
Content (entities)	Date Time Accumulated Interval

Temporal: Date
Time

Identifier	datetime
Definition	A date/time-based range
Comment	If there is no "start" and/or "end" value, then the range is open-ended.
Cardinality	optional
Content (attributes)	start - the beginning of the range (inclusive) end - the end of the range (inclusive)

Temporal:
Accumulated

Identifier	accumulated
Definition	The maximum amount of metered usage time
Cardinality	optional
Content	data value

Temporal: Interval

Identifier	interval
Definition	Recurring period of time in which rights can be exercised
Cardinality	optional
Content	data value

Spatial

Identifier	spatial
Definition	Any geographical range or extent
Comment	This entity is abstract and used to group common Constraints.
Cardinality	optional
Content (entities)	Country

Spatial: Country

Identifier	country
Definition	Specification of a Country code
Comment	Recommended best practice is to use the codes specified by the [ISO3166] Scheme.
Cardinality	optional
Content	uid - unique identifier (entity) idScheme - scheme used for the uid (attribute)

Aspect

Identifier	aspect
Definition	Any distinct feature of the Asset
Comment	This entity is abstract and used to group common Constraints
Cardinality	optional
Content (entities)	Quality SubUnit Format

Aspect: Quality

Identifier	quality
Definition	Specification of quality aspects of the asset
Cardinality	optional
Content (attributes)	tonality - the bit-depth resolution - the pixel size color - the number of colors

Aspect: SubUnit

Identifier	subunit
Definition	Specification of any sub-part of the asset
Comment	The values for the unittype attribute should be from a well known vocabulary and the source clearly identified.
Cardinality	optional
Content	unittype (attribute) constraint (entity)

Aspect: Format

Identifier	format
Definition	Specification of format(s) of the asset
Comment	The values are taken from the Internet Media Type [IMT] list.
Cardinality	optional
Content	data value

3.4 Narrow Semantics

Narrow

Identifier	narrow
Definition	Specifies modification of down-stream Rights
Cardinality	optional
Content (entities)	constraint

3.5 Reward Semantics

Money

Identifier	money
Definition	Rewards in the form of financial payments
Comment	This entity is abstract and used to group common Reward types.
Cardinality	optional
Content (entities)	Fixed Percentage

Money: Fixed

Identifier	fixed
Definition	A fixed monetary value
Comment	The total of the Fixed values for a single asset must not exceed the Retail Price.
Cardinality	optional
Content (attributes)	amount - the value of the payment (an positive integer to two decimal places) currency - the currency for the amount (use [ISO4217] codes)

Money:
Percentage

Identifier	percentage
Definition	A proportion of the value of the asset
Comment	The total of the Percentage values for a single asset must not exceed 100%.
Cardinality	optional
Content (attributes)	value - a number from 0 to 100 inclusive currency - the currency for the amount (use [ISO4217] codes)

3.6 Administration Semantics

Administration

Identifier	admin
Definition	Administrative information about the Rights expression
Cardinality	optional
Content (entities)	party datetime

4 Syntax

ODRL can be expressed in [XML] (see [DTD] in Appendix A and [XML SCHEMA] in Appendix B for formal definitions). However, it is also conceivable that *ODRL* could be expressed in other syntaxes.

ODRL is XML Namespace aware as its primary target is use with other content description and management systems. The *ODRL* XML Namespace URI for *this version* is:

<http://odrl.net/0.7/>

The final Version 1.0 *ODRL* XML Namespace URI will be:

<http://odrl.net/1.0/>

NOTE: These URIs should be considered *experimental* until the *ODRL* specification is formalised by an appropriate body and a new URI assigned.

ODRL uses XML XLink [XLINK] to refer from XML fragments to other fragments. This is used to express the relationship between the core *ODRL* entities such as Asset, Reward, and Usage. Such elements can be identified with the standard ID attribute then referred to via XLink's href attribute.

All elements can also have optional Name and Remark elements for human-readable documentation.

The XML syntax will be explained via a series of Use Cases covering different content sectors (ebooks, image, audio, video).

4.1 Ebook Use Case #1

Corky Rossi (an author) and Addison Rossi (an illustrator) publish their ebook via "EBooksRUS Publishers". They wish to allow consumers to purchase the ebook which is restricted to a single CPU only and they are allowed to print a maximum of 2 copies. They will also allow the first 5 pages (SubUnits) of the ebook to be viewed online for free.

The revenue split is \$AUD 10.00 to the Author, \$AUD 2.00 to the Illustrator and \$AUD 8.00 to the Publisher.

Massimo DiAngelo from “EBooksRUS Publishers” is responsible for maintaining the Rights metadata which has a policy of one year validity on all its metadata.

The XML encoding of this in *ODRL* would be:

```
<?xml version="1.0"?>
<rights xmlns="http://odrl.net/0.7"
        xmlns:xlink="http://www.w3.org/1999/xlink">
  <admin>
    <party>
      <uid idscheme="DOI">doi://10.9999/EP/mdiangelo-001</uid>
      <role>Rights Manager</role>
    </party>
    <datetime start="2000-07-01" end="2001-06-30"/>
  </admin>
  <asset ID="001">
    <uid idscheme="DOI">doi://10.9999/EB/rossi-0001</uid>
    <name> How to Wash Cats </name>
  </asset>
  <usage ID="002">
    <asset xlink:href="#001">
      <reward xlink:href="#003">
        <display>
          <remark> Constrain to a particular CPU only </remark>
          <constraint>
            <cpu/>
          </constraint>
        </display>
        <print>
          <remark> Can only Print 2 Copies </remark>
          <constraint>
            <count start="0" end="2"/>
          </constraint>
        </print>
      </reward>
    </asset>
  </usage>
  <reward href="#003">
    <fixed amout="10.00" currency="AUD">
      <party>
        <uid idscheme="DOI">doi://10.9999/EP/crossi-001</uid>
        <role>Author</role>
      </party>
    </fixed>
    <fixed amout="2.00" currency="AUD">
      <party>
        <uid idscheme="DOI">doi://10.9999/EP/arossi-001</uid>
        <role>Illustrator</role>
      </party>
    </fixed>
    <fixed amout="8.00" currency="AUD">
      <party>
        <uid idscheme="DOI">doi://10.9999/EP/ebooksrus-01</uid>
        <role>Publisher</role>
      </party>
    </fixed>
  </reward>
</rights>
```

```

    </fixed>
  </reward>
  <usage ID="004">
    <asset xlink:href="#001">
      <remark> Allow the first 5 pages to be viewable. Note that there
        are no Rewards associated with this Usage and hence
        no payments required </remark>
      <display>
        <constraint>
          <subunit unittype="page">
            <constraint>
              <count start="1" end ="5"/>
            </constraint>
          </subunit>
        </constraint>
      </display>
    </usage>
  </rights>

```

4.2 Ebook Use Case #2

ByeMe.Com is a distributor of ebooks. The *ODRL* expression below indicates that they have Sell rights for the identified ebook assets. The next Usage right is constrained to a particular individual (Mary Smith). Mary can also only print the HTML format of the asset for one to a maximum of 100 times. Mary is also limited to a maximum accumulated time of 10 hours of Display rights every 4 days.

```

<?xml version="1.0"?>
<rights xmlns="http://odrl.net/0.7/"
  xmlns:xlink="http://www.w3.org/1999/xlink">
  <asset ID="001">
    <uid idscheme="URI">http://byeme.com/mybook.pdf</uid>
    <uid idscheme="URI">http://byeme.com/mybook.html</uid>
  </asset>
  <reward ID="002">
    <party>
      <uid idscheme="X500">c=ZZ;o=Bye Me;cn=R Owner</uid>
      <role>Distributor</role>
    </party>
  </reward>
  <usage>
    <remark> This usage associates the Distributor with the Sell rights
      of the assets </remark>
    <asset xlink:href="#001"/>
    <reward xlink:href="#002"/>
    <sell/>
  </usage>
  <usage ID="003">
    <asset xlink:href="#001"/>
    <display>
      <constraint>
        <individual>
          <uid idscheme="X500" >c=ZZ;o=People Directory;
            cn=Mary Smith</uid>

```

```

        </individual>
        <accumulated> P10H </accumulated>
        <interval> P4D </interval>
    </constraint>
</display>
<print>
    <constraint>
        <format>text/html</format>
        <count start="1" end="100"/>
    </constraint>
</print>
</usage>

```

4.3 Image Use Case

To do...

4.4 Video Use Case

To do...

4.5 Audio Use Case

To do...

5 References

Technical Standards:

- [DCMI] Dublin Core Metadata Initiative
<<http://purl.org/DC/>>
- [DOI] Digital Object Identifier
<<http://www.doi.org/>>
- [DTD] Document Type Definition
- [EBX] Electronic Book Exchange
<<http://www.ebxwg.org/>>
- [IFLA] Functional Requirements for Bibliographic Records
<<http://www.ifla.org/VII/s13/frbr/frbr.htm>>
- [IMS] Instructional Management Systems
<<http://www.imsproject.org/>>
- [IMT] Internet Media Types
<<http://www.isi.edu/in-notes/iana/assignments/media-types/media-types>>
- [INDECS] Interoperability of Data in Ecommerce Systems
<<http://www.indecs.org/>>
- [ISBN] International Standard Book Number
- [ISO3166] Country Names and Code Elements
<<http://www.din.de/gremien/nas/nabd/iso3166ma/codlstp1/>>
- [ISO4217] Currency Names
<<http://www.xe.net/gen/iso4217.htm>>
- [ISO8601] ISO (International Organization for Standardization).
Representations of dates and times
<<http://www.iso.ch/markete/8601.pdf>>

- [MPEG] Moving Picture Experts Group (WG 4,7,21)
<<http://www.cselt.it/leonardo/mpeg/>>
- [ONIX] ONIC International V1.1
<<http://www.editeur.org/onix.html>>
- [RFC2119] Key words for use in RFCs to Indicate Requirement Levels
<<http://www.ietf.org/rfc/rfc2119.txt>>
- [URI] Uniform Resource Identifiers (URI): Generic Syntax
<<http://www.ietf.org/rfc/rfc2396.txt>>
- [VCARD] vCard MIME Directory Profile
<<http://www.ietf.org/rfc/rfc2426.txt>>
- [XLINK] XML Linking Language (XLink) Version 1.0
<<http://www.w3.org/TR/xlink/>>
- [XML] Extensible Markup Language 1.0
<<http://www.w3.org/TR/REC-xml>>
- [XML NAMESPACE] Namespaces in XML
<<http://www.w3.org/TR/REC-xml-names/>>
- [XML SCHEMA] XML Schemas Part 1: Structures
<<http://www.w3.org/TR/xmlschema-1/>>

Position Papers:

- [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>

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Appendix: A

ODRL DTD (Normative)

```

<!ELEMENT rights (admin? | asset+ | usage+ | reward* | name? | remark? |
narrow* )>
<!ATTLIST rights      xmlns:xlink  CDATA  #REQUIRED
                      xmlns       CDATA  #REQUIRED >

<!ELEMENT name (#PCDATA )>
<!ELEMENT remark (#PCDATA )>

<!ELEMENT admin (name? | remark? | party* | datetime? )>

<!ELEMENT party (name? | remark? | uid+ | role? )>

<!ELEMENT uid (#PCDATA )>

```

```

<!ATTLIST uid idscheme CDATA #REQUIRED >

<!ELEMENT role (#PCDATA)>

<!ELEMENT asset (uid+ | name? | remark? )>
<!ATTLIST asset      xlink:href CDATA #IMPLIED
                    ID          CDATA #IMPLIED >

<!ELEMENT usage (asset* | display* | reward* | print* | play* | execute* | sell* |
lend* | give* | modify* | annotate* | copy* | name? | remark? )>

<!ELEMENT print (name? | remark? | constraint* )>

<!ELEMENT display (name? | remark? | constraint* )>

<!ELEMENT play (name? | remark? | constraint* )>

<!ELEMENT execute (name? | remark? | constraint* )>

<!ELEMENT sell (name? | remark? | constraint* )>

<!ELEMENT lend (name? | remark? | constraint* )>

<!ELEMENT give (name? | remark? | constraint* )>

<!ELEMENT modify (name? | remark? | constraint* )>

<!ELEMENT annotate (name? | remark? | constraint* )>

<!ELEMENT copy (name? | remark? | constraint* )>

<!ELEMENT constraint (accumulated* | interval* | datetime* | country* | quality* |
count* | ipaddress* | subunit* | individual* | group* | format* | cpu* | network* |
screen* | storage* | memory* | printer* | name? | remark? )>

<!ELEMENT individual (uid+ | name? | remark? | constraint* )>

<!ELEMENT group (uid+ | name? | remark? | constraint* )>

<!ELEMENT cpu (uid+ | name? | remark? | constraint* )>

<!ELEMENT network (uid+ | name? | remark? | constraint* )>

<!ELEMENT screen (uid+ | name? | remark? | constraint* )>

<!ELEMENT storage (uid+ | name? | remark? | constraint* )>

<!ELEMENT memory (uid+ | name? | remark? | constraint* )>

<!ELEMENT printer (uid+ | name? | remark? | constraint* )>

<!ELEMENT count EMPTY>
<!ATTLIST count end CDATA #REQUIRED
                start CDATA #REQUIRED >

<!ELEMENT ipaddress EMPTY>
<!ATTLIST ipaddress end CDATA #REQUIRED
                  start CDATA #REQUIRED >

<!ELEMENT datetime EMPTY>
<!ATTLIST datetime end CDATA #REQUIRED
                  start CDATA #REQUIRED >

```

```
<!ELEMENT accumulated (#PCDATA)>

<!ELEMENT interval (#PCDATA)>

<!ELEMENT country (uid+ | name? | remark? | constraint* )>

<!ELEMENT quality EMPTY>
<!ATTLIST quality  resolution CDATA  #IMPLIED
                    color    CDATA  #IMPLIED
                    tonality  CDATA  #IMPLIED >

<!ELEMENT subunit (name? | remark? | constraint* )>
<!ATTLIST subunit  unittype CDATA  #REQUIRED >

<!ELEMENT format (#PCDATA)>

<!ELEMENT reward (fixed* | percentage* | name? | remark? )>
<!ATTLIST reward  ID          CDATA  #IMPLIED
                  xlink:href CDATA  #IMPLIED >

<!ELEMENT fixed (name? | remark? | party+ )>
<!ATTLIST fixed  currency CDATA  #REQUIRED
                amount  CDATA  #IMPLIED >

<!ELEMENT percentage (name? | remark? | party+ )>
<!ATTLIST percentage  currency CDATA  #REQUIRED
                      value   CDATA  #REQUIRED >

<!ELEMENT narrow EMPTY>
<!ATTLIST narrow  xlink:href CDATA  #REQUIRED >
```

Appendix: B ODRL XML Schema (Non-Normative)

NOTE: The XML Schema will become Normative when the XML Schema becomes a W3C Recommendation.

To do...