

PRISM:
Publishing Requirements for Industry Standard Metadata

PRISM Specification: Modular: Version 1.2

PRISM Introduction

2005 02 26

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2 Status

2.1 Document Status

The status of this document is:

✓	Draft
✓	Released for Public Comment
✓	Released

2.2 Document Location

The location of this document is:

http://www.prismstandard.org/specifications/1.2/modularized/PRISM_introduction_12.pdf

2.3 Version History

<i>Version Number</i>	<i>Release Date</i>	<i>Editor</i>	<i>Description</i>
1.2	1/26/05	McConnell	Converted from unmodularized PRISM spec v 1.2

3 PRISM Documentation Structure

As of this release, PRISM is described in a set of formal, modularized documents that, taken together, represent “the PRISM Specification.” Together these documents comprise the PRISM Documentation Package.

The initial release of the modularized PRISM Documentation Package, is the equivalent of the single document PRISM 1.2 Specification that was approved in December 2004. Moving forward, the monolithic PRISM Specification will no longer be maintained. All revisions will be made to individual documents in the PRISM Documentation Package, with each being versioned separately. Over time, new documents may also be added to the documentation set that makes up the PRISM Specification.

3.1 Normative and Non-normative Sections

Documents in the PRISM Documentation Package may contain both normative and non-normative material; normative material describes element names, attributes, formats, and the contents of elements that is required in order for content or systems to comply with the PRISM Specification. Non-normative material explains, expands on, or clarifies the normative material, but it does not represent requirements for compliance. Normative material in the PRISM Documentation Package is explicitly identified as such; any material not identified as normative can be assumed to be non-normative.

3.2 The PRISM Documentation Package

The PRISM Documentation Package consists of:

Document	Description
PRISM Introduction [PRISMINT]	Overview, background, purpose and scope of PRISM; examples; contains no normative material.
PRISM Compliance [PRISMCOMP]	Describes two profiles of PRISM compliance for content and systems; includes normative material.
The PRISM Namespace [PRISMPRISMNS]	Describes the elements contained in the PRISM namespace; includes normative material.
The PRISM Subset of the Dublin Core Namespace [PRISMDCNS]	Describes the elements from the Dublin Core namespace that are included in PRISM; includes normative material.
The PRISM Rights Language Namespace [PRISMRLNS]	Describes the elements contained in the PRISM Rights Language Namespace; includes normative material.
The PRISM Inline Markup Namespace [PRISMIMNS]	Describes the elements contained in the PRISM Inline Markup Namespace; includes normative material.
The PRISM Controlled Vocabulary Namespace [PRISMCVNS]	Describes the elements contained in the PRISM Controlled Vocabulary Namespace; includes normative material.
The PRISM Aggregator Message Namespace [PRISMAMNS]	Describes the elements contained in the PRISM Aggregator Message Namespace; includes normative material.

Table 1.0: PRISM Documentation Package

3.2.1 Additional PRISM Documentation

The PRISM Aggregator Message (PAM), a DTD-based application of PRISM, adds a small namespace of its own, formally described in [PRISMAMNS]. The structure and use of PAM are described separately in [Guide to the PRISM Aggregator Document Type Definition \(DTD\) V. 1.1. \[PAMGUIDE\]](#)

3.2.2 Access to PRISM Documentation

The PRISM documentation package, the PAM Guide (see above), the PAM DTD, and a range of other information concerning PRISM are all publicly and freely available on the PRISM website, www.prismstandard.org.

4 Introduction

4.1 Purpose and Scope

The Publishing Requirements for Industry Standard Metadata (PRISM) specification defines an XML metadata vocabulary for syndicating, aggregating, post-processing and multi-purposing magazine, news, catalog, book, and mainstream journal content. PRISM provides a framework for the interchange and preservation of content and metadata, a collection of elements to describe that content, and a set of controlled vocabularies listing the values for those elements.

Metadata is an exceedingly broad category of information covering everything from an article's country of origin to the fonts used in its layout. PRISM's scope is driven by the needs of publishers to receive, track, and deliver multi-part content. The focus is on additional uses for the content, so metadata concerning the content's appearance is outside PRISM's scope. The working group focused on metadata for:

- General-purpose description of resources as a whole
- Specification of a resource's relationships to other resources
- Definition of intellectual property rights and permissions
- Expressing inline metadata (that is, markup within the resource itself).

Like the Information and Content Exchange protocol [ICE], PRISM is designed to be straightforward to use over the Internet, support a wide variety of applications, not constrain data formats of the resources being described, conform to a specific XML syntax, and be constrained to practical and implementable mechanisms.

The PRISM group's emphasis on implementable mechanisms is key to many of the choices made in this specification. For example, the elements provided for describing intellectual property rights are not intended to be a complete, general-purpose rights language that will let unknown parties do business with complete confidence and settle their accounts with micro-transactions. Instead, it provides elements needed for the most common cases encountered when one publisher of information wants to reuse material from another. Its focus is on reducing the cost of compliance with existing contracts that have been negotiated between a publisher and their business partners.

4.2 Relationship to Other Specifications

Because there are already so many standards, the emphasis of the PRISM group was to recommend a coherent set of existing standards. New elements were only to be defined as needed to extend that set of standards to meet the specific needs of the magazine publishing scenarios. This section discusses the standards PRISM is built upon, how it relates to some other well-known standards, and how subsequent standards can build upon this specification.

4.2.1 eXtensible Markup Language (XML)

PRISM metadata documents are an application of XML [W3C-XML]. Basic concepts in PRISM are represented using the element/attribute markup model of XML. The PRISM Specification makes use of additional XML concepts, such as namespaces[W3C-XML-NS].

4.2.2 Resource Description Framework (RDF)

The Resource Description Framework [W3C-RDF] defines a model and XML syntax to represent and transport metadata. PRISM profile two compliance uses a simplified profile of RDF for its metadata framework. Thus, PRISM profile two compliant applications will generate metadata that can be processed by RDF processing applications. However, the converse is not necessarily true. The behavior of applications processing input that does not conform to this specification is not defined.

4.2.3 Dublin Core (DC)

The Dublin Core Metadata Initiative [DCMI] established a set of metadata to describe electronic resources in a manner similar to a library card catalog. The Dublin Core includes 15 general elements designed to characterize resources. PRISM uses the Dublin Core and its relation types as the foundation for its metadata. PRISM also recommends practices for using the Dublin Core vocabulary.

4.2.4 NewsML

NewsML [IPTC-NEWSML] is a specification from the International Press Telecommunications Council (IPTC) aimed at the transmission of news stories and the automation of newswire services. PRISM focuses on describing content and how it may be reused. While there is some overlap between the two standards, PRISM and NewsML are largely complementary. PRISM's controlled vocabularies have been specified in such a way that they can be used in NewsML. PRISM profile one compliance permits the incorporation of PRISM elements into NewsML, should the IPTC elect to do so. The PRISM Working Group and the IPTC are working together to investigate a common format and metadata vocabulary to satisfy the needs of the members of both organizations.

4.2.5 News Industry Text Format (NITF)

NITF [IPTC-NITF] is another IPTC specification. NITF provides a DTD designed to mark up news stories. PRISM is a metadata vocabulary designed to describe resources and their relationship to other resources. Although NITF has some elements to specify metadata and header information that are duplicated in PRISM, the two standards are largely complementary. Where there is overlap, such as with PRISM's inline markup, it is noted in the specification.

4.2.6 Information and Content Exchange (ICE)

The Information and Content Exchange protocol manages and automates syndication relationships, data transfer, and results analysis. PRISM complements ICE by providing an industry-standard vocabulary to automate content reuse and syndication processes. To quote from the ICE specification [ICE]:

Reusing and redistributing information and content from one Web site to another is an ad hoc and expensive process. The expense derives from two different types of problem:

- Before successfully sharing and reusing information, both ends need a common vocabulary.
- Before successfully transferring any data and managing the relationship, both ends need a common protocol and management model.

Successful content syndication requires solving both halves of this puzzle.

Thus, there is a natural synergy between ICE and PRISM. ICE provides the protocol for syndication processes and PRISM provides a description of the resource being syndicated, which can be used to personalize the delivery of content to tightly-focused target markets.

4.2.7 RSS (RDF Site Summary) 1.0

RSS (RDF Site Summary) 1.0 [RSS] is a lightweight format for syndication and descriptive metadata. Like PRISM, RSS is an XML application, conforms to the W3C's RDF Specification and is extensible via XML-namespace and/or RDF based modularization. The RSS-WG is currently developing and standardizing new modules.

The primary application of RSS is as a very lightweight syndication protocol for distributing headlines and links. It is very easy to implement, but does not offer the syndication management and delivery confirmation features of ICE.

4.2.8 eXtensible Rights Markup Language (XrML)

XrMLTM, [XRML], developed by ContentGuard, Inc., is a general-purpose, XML-based specification grammar for expressing rights and conditions associated with digital content, resources, and services. It is fully compliant with XML namespaces using XML schema technology. Rights and conditions can be securely assigned at varying levels of granularity to individuals as well as groups of individuals and the parties can be authenticated. In addition, the licenses can be interpreted and enforced by the consumption application providing persistent protection. XrML is designed to be used in either single tier or multi-tier channels of distribution with the downstream rights and conditions assigned at any level. In addition, the trust environment can be specified in the language in order to maintain the integrity of the rights and conditions. Standards such as XSLT and XPath have been employed in XrML, and XML Signature and XML Encryption have been used for authentication and protection of the rights expressions. ContentGuard intends to transfer the governance responsibilities to an international standards organization

The PRISM Rights Language (PRL, see section 5.4) is the part of the PRISM Specification which is closest to XrML. However, the two have different goals. PRL assumes that the sender and receiver of a PRISM communication already have a business arrangement that is specified in a contract. PRISM's focus is on lowering the costs of complying with that agreement. Thus, it provides a standard means of expressing common terms and conditions. PRISM specifies as little as possible about the internal behavior of systems. PRISM's treatment of derivative use rights represents those that are most commonly used in the PRISM environment.

4.2.9 XTM (XML Topic Maps)

XTM is an XML representation of ISO Topic Maps [ISO-13250], an approach for representing topics, their occurrences in documents, and the associations between topics. This is very similar to PRISM's use of controlled vocabularies.

XTM documents require that topics use a URI as a unique identifier. PRISM descriptions can directly cite XTM topics when there is a need to use them where PRISM allows values from controlled vocabularies. There is also a simple mapping between the XTM format and the PRISM group's simple XML format for controlled vocabularies.

4.2.10 Future Specifications

This document defines a number of XML elements to convey metadata that describes content. It also specifies the basic rules of how they can be combined. However, there are any number of specific situations which call for using some, but not all, of the PRISM elements. Many of the situations will also call for combining the PRISM elements with elements from other namespaces. As one example, a magazine publisher might wish to start sending an XML version of their articles to aggregators like LexisNexis. The publisher and aggregator would need to define the details of that XML format. It could use PRISM elements in the header for the articles, while article markup such as paragraph breaks or section headings could come from another namespace such as XHTML. The specific mixture of elements would need to be specified in a DTD. In other situations, it might be desirable to send more or less metadata, depending on the level of trust the sender has with the receiver.

This selection of subsets of the full specification is encouraged. Groups developing such subsets must, however, ensure that the subset will still be a legal PRISM document. For example, in the application where a publisher is sending articles to the aggregator, Groups which need to develop such follow-on specifications are encouraged to define the specific subsets they will accept. The development of two forms of PRISM compliance, profile two and profile one, was a direct result of the need to provide just this flexibility.

4.3 Additional Issues

4.3.1 Redundancy

Redundancy is a necessary consequence of re-using existing work. For example, when sending PRISM data in an ICE payload, there will be duplication of PRISM timestamp information and ICE header data. Therefore, in some cases, the same information will be specified in more than one place. This is normally a situation to be avoided. On the other hand, PRISM descriptions need to be able to stand alone, so there is no way to optimize PRISM's content for a particular protocol. The working group decided that redundancy should neither be encouraged nor avoided.

4.3.2 Exchange Mechanisms

PRISM specifies an interchange format, and does not define or impose any particular interchange mechanism. There are many ways to exchange the descriptions and the content they describe. Developers of such interchange protocols should consider the following factors:

- Easily separable content: A tool that provides metadata will need to get at this information quickly. If metadata is mixed with content, these tools will have to always scan through the content. On the other hand, it is significantly easier to keep the metadata associated with the content if it is mixed in (as a header, for example).
- Reference vs. Inline content: Referencing content is visually clean, but presents a challenge with access (security, stale links, etc). Inline requires larger data streams and longer updates in the face of changes.
- Encoding. Depending on the choice of format, encoding of the content may be necessary. Extra computation or space will be needed.

4.3.3 Security

The PRISM Specification deliberately does not address security issues. The working group decided that the metadata descriptions could be secured by whatever security provisions might be applied to the resource(s) being described. PRISM implementations can achieve necessary security using a variety of methods, including:

Encryption at the transport level, e.g., via SSL, PGP, or S/MIME.

Sending digitally signed content as items within the PRISM interchange format, with verification performed at the application level (above PRISM).

4.3.4 Rights Enforcement

The PRISM Specification does not address the issue of rights enforcement mechanisms. The working group decided that the most important usage scenarios at this time involved parties with an existing contractual relationship. This implied that the most important functionality required from PRISM's rights elements was to reduce the costs associated with clearing rights, not to enable secure commerce between unknown parties. Therefore the PRISM Specification provides mechanisms to describe the most common rights and permissions associated with content, but does not specify the means to enforce compliance with those descriptions. Essentially, the goal is to make it less expensive for honest parties to remain honest, and to let the courts serve their current enforcement role.

4.3.5 Compliance

Between the creation of previous versions of this document and the current version, PRISM compliance has been redefined to include two forms or "profiles." These two forms are defined in a separate document, [PRISM Compliance](#). Every effort has been made to edit other sections of the PRISM documentation package in order to reflect this important change, but it is possible that language may still exist, in either normative or non-normative sections, that is in conflict with the new definitions of compliance. Should the reader encounter any such ambiguity, he or she may assume that [PRISM Compliance](#) is authoritative.

4.4 Definitions

The following terms and phrases are used throughout this document in the sense listed below. Readers will most likely not fully understand these definitions without also reading through the remainder of the PRISM documentation package.

Authority File	One of the forms of a controlled vocabulary, in which a list of uniquely identified entities, such as companies, authors, countries, employees, or customers, is maintained over time.
Content	Content, as it is used in the PRISM Specification is a non-normative term assumed to be a resource or a collection of resources
Content Provider	A publisher, business, portal site, person or entity making content available in any medium.
Controlled Vocabulary	A list of uniquely identified terms with known meaning. The list itself has a defined maintenance procedure and restricted update access. For example, an employee database is one type of controlled vocabulary. The list of terms (staff names) is uniquely identified (employee number) and is maintained by a known procedure and staff (the HR department). There are two major types of controlled vocabularies - authority files and taxonomies.
Metadata	Information about a resource. In this specification, metadata is expressed as one or more properties.
Property	A field with a defined meaning used to describe a resource. A property plus the value of that property for a specific resource is a statement about that resource. [W3C-RDF]
Resource	Text, graphics, sound, video or anything else that can be identified with a URI or other identification scheme. The PRISM Specification uses this term because it is not used in casual writing, so it can be used unambiguously in the PRISM Specification.
Statement	An assertion about a resource. Typically, statements assert that relations such as "part of" exist between resources, or that a resource has a particular value of a property, such as a "format" of "text/html".
Taxonomy	One of the forms of a controlled vocabulary, in which the uniquely identified concepts are arranged in a hierarchy that represents the relations between more specific and more general concepts.

Table 2: Definitions

4.5 Structure of this Document

The document is entirely non-normative. It provides an introduction and tutorial overview of the PRISM Specification. Despite being non-normative, there are occasional statements using the key words MUST, SHOULD, MAY, etc. Those statements will be repeated in other, normative documents.

This document is divided into three general sections. The first section provides this general introduction and establishes some of the context for the PRISM Specification. The second section provides a tutorial for the major features of the spec, using a series of examples around a common scenario. The third section provides an overview of the PRISM namespaces into which all PRISM elements are grouped.

5 Overview

This section provides a non-normative overview of the PRISM Specification and the types of problems that it addresses. It introduces the core concepts and many of the elements present in the PRISM Specification by starting with a basic document with Dublin Core metadata, then uses PRISM metadata elements to create richer descriptions of the article.

Although the PRISM Specification contains a large number of elements and controlled vocabulary terms, most of them are optional. A PRISM-compliant description can be very simple, or quite elaborate. It is not necessary to put forth a large amount of effort to apply metadata to every resource, although it is possible to apply very rich metadata to resources whose potential for reuse justifies such an investment. Similarly, PRISM implementations need not support every feature in the specification. Simple implementations will probably begin with the elements listed in Section 5, and only add more capability as needed.

Note that PRISM provides two forms of compliance, profile two and profile one. The primary difference is that profile two requires RDF-based structure as shown in virtually all the examples in this document. Profile one does not require the use of RDF. Please see section 4.2 for the details of PRISM compliance profiles.

5.1 Travel Content Syndication Scenario

Wanderlust, a major travel publication, has a business relationship with travelmongo.com, a travel portal. After Wanderlust goes to press, they syndicate all of their articles and sidebars to content partners like travelmongo.com. Like many other publications, Wanderlust does not have the right to resell all of their images, because some of them have been obtained from stock photo agencies.

When Wanderlust creates syndication offers, an automated script searches through the metadata for the issue's content to ensure that anything that cannot be syndicated is removed from the syndication offer with alternatives substituted when possible. Since Wanderlust tags their content with rights information in a standard way, this process happens automatically using off-the-shelf software.

Because Wanderlust includes standard descriptive information about people, products, places and rights when they syndicate their content, travelmongo.com can populate their content management system with all the appropriate data so that the articles can be properly classified and indexed. This reduces the cost to travelmongo.com of subscribing to third party content and makes content from Wanderlust even more valuable for them.

5.2 Basic Metadata

The elements in the Dublin Core form the basis for PRISM's metadata vocabulary. This simple PRISM document uses some Dublin Core elements to describe a photo taken on the island of Corfu:

```
<?xml version="1.0" encoding="UTF-8"?>
<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
        xmlns:dc="http://purl.org/dc/elements/1.1/"
        xml:lang="en-US">
  <rdf:Description rdf:about="http://wanderlust.com/2000/08/Corfu.jpg">
    <dc:identifier rdf:resource="http://wanderlust.com/content/2357845" />
    <dc:description>Photograph taken at 6:00 am on Corfu with two models
  </dc:description>
    <dc:title>Walking on the Beach in Corfu</dc:title>
    <dc:creator>John Peterson</dc:creator>
    <dc:contributor>Sally Smith, lighting</dc:contributor>
    <dc:format>image/jpeg</dc:format>
  </rdf:Description>
</rdf:RDF>
```

Example 1: Basic PRISM Description

PRISM descriptions are XML documents [W3C-XML], thus they begin with the standard XML declaration: `<?xml version="1.0"?>`. A character encoding may be given if needed. As indicated by the two attributes beginning with 'xmlns:', PRISM documents use the XML Namespace mechanism [W3C-XML-NS]. This allows elements and attributes from different namespaces to be combined. Namespaces are the primary extension mechanism in PRISM.

PRISM profile two descriptions are compliant with the RDF constraints on the XML syntax. Thus, they begin with the `rdf:RDF` element. Because PRISM obeys the RDF constraints on XML structure, implementations are guaranteed to correctly parse even unknown elements and attributes. PRISM-compliant applications **MUST NOT** throw an error if they encounter unknown elements or attributes. They are free to delete or preserve such information, although recommended practice is to retain them and pass them along. Retaining the information is an architectural principle which helps new functionality be established in the presence of older versions of software.

PRISM recommends that the language of the metadata record, which is potentially different than the language of the resource it describes, be explicitly specified with the `xml:lang` attribute.

PRISM **STRONGLY RECOMMENDS** that resources have unique identifiers. In the above, profile two compliant example, the photo is identified by a URI in the `rdf:about` attribute of the `rdf:Description` element. Profile two requires `rdf:about`; the `dc:identifier` element can be used for other identifiers, such as ISBN numbers or system-specific identifiers or can be omitted. In the above example, the `dc:identifier` element contains an asset ID for Wanderlust's asset management system. In profile one, `dc:identifier` is required.

PRISM follows the case convention adopted in the RDF specification. All elements, attributes and attribute values typically begin with an initial lower case letter, and compound names have the first letter of subsequent words capitalized. Element types may begin with an uppercase letter when they denote Classes in the sense of the RDF Schema [W3C-RDFS]. Only one of the elements in any of the PRISM namespaces, `pcv:Descriptor`, does so. PRISM uses a simple naming convention. We avoid abbreviations, use American English spelling, and make the element names into singular nouns (or a pseudoNounPhrase, because of the case convention).

In PRISM profile two, ,property values that are URI references are given as the value of an `rdf:resource` attribute, as shown in the `dc:identifier` element of Example 1,. Prose or non-URI values are given as element content, as seen in the `dc:description` element. This allows automated systems to easily determine when a property value is a URI reference.

5.3 Embedded vs. External Metadata

A common question is "Where do I put PRISM metadata?" There are three common places, the choice of which to use depends on the application.

1. A description of a single resource can be provided as a complete, standalone, XML document that describes another file. Such a use is shown in Example 1.
2. A description can be included in the content, typically as a header or other out-of-band information. Example 2 shows a sample of a simple XML file which contains an embedded PRISM description as a header.
3. Descriptions of a number of files can be collected together in a 'manifest'. Such a collection is shown in Example 3. Example 13 also shows multiple items described in a single PRISM document.

```
<?xml version="1.0" encoding="UTF-8"?>
<doc xml:lang="en-US">
  <rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
          xmlns:dc="http://purl.org/dc/elements/1.1/">
    <rdf:Description rdf:about="">
      <dc:description>Start of the Gettysburg Address</dc:description>
      <dc:creator>Abraham Lincoln</dc:creator>
    </rdf:Description>
  </rdf:RDF>
  <body>
    <p>Fourscore and seven years ago, our fathers brought forth on this
continent a new nation, conceived in liberty, and dedicated to the
proposition that all men are created equal.
    </p>
  </body>
</doc>
```

Example 2: Embedding a Description in the Resource it Describes

Note that the empty string is given as the value of the `rdf:about` attribute in Example 2. This means that the PRISM description is about the current file. The value of the `rdf:about` attribute is required to be a URI reference – either absolute or relative. By definition, relative URIs are relative to an absolute URI known as the base. By default, that base URI is the URI of the containing document. In this case, the relative URI reference is the empty string, meaning that it does not modify the base URI. Therefore, the `rdf:about` attribute refers to the current document.

```
<?xml version="1.0" encoding="UTF-8"?>
<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
        xmlns:dc="http://purl.org/dc/elements/1.1/"
        xml:lang="en-US">
  <rdf:Description rdf:about="Gettysburg.xml">
    <dc:description>Start of the Gettysburg Address</dc:description>
    <dc:creator>Abraham Lincoln</dc:creator>
    <dc:format>text/xml</dc:format>
  </rdf:Description>
  <rdf:Description rdf:about="Corfu.jpg">
    <dc:title>Walking on the Beach in Corfu</dc:title>
    <dc:creator>John Peterson</dc:creator>
    <dc:format>image/jpeg</dc:format>
  </rdf:Description>
  <rdf:Description rdf:about="Welch-bio.html">
    <dc:title>GE's Genius</dc:title>
    <dc:subject>Jack Welch</dc:subject>
    <dc:creator>Jane Doe</dc:creator>
    <dc:format>text/html</dc:format>
  </rdf:Description>
  ...
</rdf:RDF>
```

Example 3: Describing Multiple Resources in a Manifest

5.3.1 A Brief Digression on Identifiers

Example 3 also shows the use of relative URIs. In this case they would be files in the same directory as the PRISM manifest.

A new attribute, `xml:base` [W3C-XML-BASE], has been specified by the W3C to allow XML documents to explicitly set their base URI. At the time of this writing, it appears the RDF Core Working Group will update the RDF specification to allow that attribute. PRISM recommends that implementations SHOULD support the `xml:base` attribute.

5.3.2 A Brief Digression on Intent

Example 2 illustrates another important point. Note that the name given in the `dc:creator` element is “Abraham Lincoln”, not the name of the person who actually created the XML file and entered Lincoln’s famous line into it. There are applications, such as workflow, quality assurance, and historical analysis, where it would be important to track the identity of that individual. However, none of those are problems PRISM attempts to solve. PRISM’s purpose is to describe information for exchange and reuse between different systems, but not to say anything about the internal operations of those systems. The PRISM Working Group decided that workflow was an internal matter. This focus on a particular problem allows PRISM descriptions to avoid some thorny issues that more general specifications must address.

5.4 Controlled Vocabularies

Property values in PRISM may be strings, as shown in Example 3, or may be terms from a controlled vocabulary. Controlled vocabularies are an important extensibility mechanism. They also enable significantly more sophisticated applications of the metadata. As an example, consider the two Descriptions below. The first provides a basic, human-readable, value for the `dc:creator` element, telling us that the Corfu photograph was taken by John Peterson. The second description appears harder to read, because it does not give us John Peterson’s name. Instead, it makes reference to John Peterson’s entry in the employee database for Wanderlust.

```
<rdf:Description rdf:about="http://wanderlust.com/2000/08/Corfu.jpg">
  <dc:creator>John Peterson</dc:creator>
  ...
</rdf:Description>
```

```
<rdf:Description rdf:about="http://wanderlust.com/2000/08/Corfu.jpg">
  <dc:creator rdf:resource="http://wanderlust.com/emp3845"/>
  ...
</rdf:Description>
```

Example 4: Use of a String Value vs. Controlled Vocabulary Reference

That employee database is an example of a controlled vocabulary – it keeps a list of terms (employee names). It has a defined and controlled update procedure (only authorized members of the HR department can update the employee database, and all changes are logged). It uses a unique identification scheme (employee numbers) to handle the cases where the terms are not unique (Wanderlust might have more than one employee with a name like “John Peterson”). It can associate additional information with each entry (salary, division, job title, etc.)

The unique identifier is one of the keys to the power behind the use of controlled vocabularies. If we are given metadata like the first example, we are limited in the types of displays we can generate. We can list Wanderlust’s photographs, sorted by title or by author name. By using the employee database, we can generate those, but also lists organized by department, job title, salary, etc. We also avoid problems around searching for common names like “John Smith”, dealing with name changes such as those due to marriage and divorce, and searching for items that have been described in other languages. Finally, content items are easier to reuse if they have been coded with widely adopted controlled vocabularies, which increases their resale value.

Defining additional vocabularies for specialized uses is a way to extend descriptive power without resorting to prose explanations. This makes them far more suited to automatic processing.

PRISM specifies controlled vocabularies of values for some elements such as `dc:type` and `prism:category`. Others elements will use controlled vocabularies created and maintained by third parties, such as the International Standards Organization (ISO). For example, PRISM recommends the use of ISO 3166 (Codes for Countries) as the value of elements like `prism:location`. Other third-party controlled vocabularies, such as the Getty Thesaurus of Geographic Names [TGN] may be used. Site-specific controlled vocabularies, such as from employee or customer databases, may also be used at the risk of limiting interoperability.

In Example 5, we can denote the location shown in the photograph by using the ISO country codes vocabulary:

```
<rdf:Description rdf:about="http://wanderlust.com/2000/08/Corfu.jpg">
  <dc:identifier rdf:resource="http://wanderlust/content/2357845" />
  ...
  <dc:coverage rdf:resource="http://prismstandard.org/vocabs/ISO-3166/GR" />
</rdf:Description>
```

Example 5: Referring to Locations With Controlled Vocabularies

5.4.1 Definition of Controlled Vocabularies

PRISM provides a small namespace of XML elements so that new controlled vocabularies can be defined. For example, Wanderlust might have prepared an exportable version of their employee database that contained entries like:

```
...
<pcv:Descriptor rdf:ID='http://wanderlust.com/emp3845'>
  <pcv:code>3845</pcv:code>
  <pcv:label>John Peterson</pcv:label>
  <hr:hireDate>1995-2-22</hr:hireDate>
  <hr:division>Photography</hr:division>
  <hr:manager rdf:resource="emp2234"/>
</pcv:Descriptor>
<pcv:Descriptor rdf:ID='http://wanderlust.com/emp4541'>
  <pcv:code>4541</pcv:code>
  <pcv:label>Sally Smith</pcv:label>
  <hr:hireDate>1999-12-02</hr:hireDate>
  <hr:division>Photography</hr:division>
  <hr:manager rdf:resource="emp3845"/>
</pcv:Descriptor>
...
```

Example 6: Providing Custom Controlled Vocabularies

These entries use elements from the Prism Controlled Vocabulary (PCV) namespace for information important to the controlled vocabulary nature of the entries – the employee name and the employee ID. The PCV namespace also includes other elements so it can represent basic hierarchical taxonomies. The PCV namespace is not intended to be a complete namespace for the development, representation, and maintenance of taxonomies and other forms of controlled vocabularies. Other vocabularies, such as XTM or VocML, may be used for such purposes. As long as URI references can be used to refer to the terms defined in these other markup languages, there is no problem in using them in PRISM descriptions.

The sample descriptions in Example 6 also mix in elements from a hypothetical Human Resources (hr) namespace. Providing that information enables useful functions, such as sorting the results by division or by manager, etc. The hr namespace is only an example, provided to show how elements from other namespaces may be mixed into PRISM descriptions.

5.4.2 Internal Description of Controlled Vocabularies

Linking to externally-defined controlled vocabularies is a very useful capability, as indicated by the range of additional views described in the earlier example. However, external vocabularies do require lookups in order to

fetch that information, which may make common operations too slow. PRISM also allows portions of a vocabulary entry to be provided within a description that uses them, similar to a caching mechanism. For example, the PRISM description of the Corfu photo can be made more readable, while still allowing all the power that comes from controlled vocabularies, by providing some of the information inline:

```
<?xml version="1.0" encoding="UTF-8"?>
<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  xmlns:prism="http://prismstandard.org/namespaces/1.2/basic/"
  xmlns:dc="http://purl.org/dc/elements/1.1/"
  xml:base="http://wanderlust.com/">
  <rdf:Description rdf:about="/2000/08/Corfu.jpg">
    <dc:identifier rdf:resource="/content/2357845" />
    <dc:creator>
      <pcv:Descriptor rdf:about="/emp3845">
        <pcv:label>John Peterson</pcv:label>
      </pcv:Descriptor>
    </dc:creator>
    <dc:coverage>
      <pcv:Descriptor
        rdf:about="http://prismstandard.org/vocabs/ISO-3166/GR">
        <pcv:label xml:lang="en">Greece</pcv:label>
        <pcv:label xml:lang="fr">Grèce</pcv:label>
      </pcv:Descriptor>
    </dc:coverage>
  </rdf:Description>
</rdf:RDF>
```

Example 7: Providing Human-Readable Controlled Vocabulary References

This approach uses the `pcv:Descriptor` element, which is a subclass of `rdf:Descriptor`, indicating that the resource is a taxon in a controlled vocabulary. Notice it also uses the `rdf:about` attribute, instead of the `rdf:ID` attribute, which means that we are describing the taxon, not defining it. The actual definitions of those terms are maintained elsewhere.

5.4.3 PRISM-defined Controlled Vocabularies

The PRISM Specification defines a small set of vocabularies for use in characterizing resources. These vocabularies are defined in [PRISMCOMP].

5.5 Relations

It is often necessary to describe how a number of resources are related. For example, an image can be part of a magazine article. PRISM defines a number of elements to express relations between resources, so describing that this image is part of a magazine article can be done as follows:

```
<rdf:Description rdf:about="http://wanderlust.com/2000/08/Corfu.jpg">
  <dc:identifier rdf:resource="http://wanderlust.com/content/2357845" />
  ...
  <prism:isPartOf rdf:resource=
    "http://wanderlust.com/2000/08/CorfuArticle.xml" />
</rdf:Description>
```

Example 8: Contained-In Relationship

It is possible, but not mandatory, to add a statement to the description of the Corfu article saying that it contained the image:

```
<rdf:Description rdf:about="http://wanderlust.com/2000/08/CorfuArticle.xml">
  ...
  <prism:hasPart rdf:resource="http://wanderlust.com/2000/08/Corfu.jpg" />
</rdf:Description>
```

Example 9: Containing Relationship

5.6 Resource Type and Category

Many different kinds of information are frequently lumped together as information about the 'type' of a resource. The PRISM Specification breaks out three components in order to allow for more precise searches.

First, file formats are indicated through the use of Internet Media Types (aka MIME types [RFC-2046]) in the `dc:format` element.

Second, information on the stereotypical type of intellectual content, such as obituaries vs. election results, is indicated through the use of the `prism:category` element and the controlled vocabulary presented in [PRISMCOMP] Table 7: Categories (intellectual genre).

The PRISM group found that these two were not all the types commonly used. Many 'types' commonly used, such as tables, charts, sidebars, etc. are not intellectual genre, they are stereotypical modes of presentation. As an example, election results could be presented in a table, a map, a pie chart, or many other ways. The style of presentation for a resource is indicated by the `dc:type` element and the values listed in [PRISMCOMP] Table 6: Controlled Vocabulary of Presentation Styles.

	<i>dc:format</i>	<i>dc:type</i>	<i>prism:category</i>
Image 1	image/jpg	photo	portrait
Image 2	image/png	illustration	cartoon
Image 3	image/png	graph	financialStatement
Text 1	text/xml	article	biography
Text 2	text/xml	sidebar	biography
Text 3	text/xml	sidebar	opinion
Video1	video/mpeg	clip	interview
Video 2	video/mpeg	clip	advertisement
Video 3	video/avi	clip	biography
<i>Table3: Sample of Content 'Types'</i>			

Table 3 shows examples of those three facets for various resources. Advanced searching applications can allow users to search for resources according to the different facets.

5.7 Rights and Permissions

Licensing content for reuse is a major source of revenue for many publishers. Conforming to licensing agreements is a major cost – not only to the licensee of the content but also to the licensor. For these reasons, PRISM provides elements and controlled vocabularies for the purpose of describing the rights and permissions granted to the receiver of content. The PRISM Specification provides those elements in two namespaces. Basic, commonly used, elements are defined as part of the PRISM namespace. A separate namespace is defined for the elements in the PRISM Rights Language (PRL). Since the field of Digital Rights Management (DRM) is evolving so quickly, the working group decided it would be premature to recommend one of the current DRM standards for rights information, such as the eXtensible rights Markup Language [XrML] or Open Digital Rights Language [ODRL]. The working group expects that a rights management language will eventually become an accepted standard. As an interim measure, the working group focused on specifying a small set of elements that would encode the most common rights information to allow interoperable exchange of basic rights information.

To do this, the PRISM rights language makes a couple of simplifying assumption. It assumes that the sender and receiver of content are engaged in a business relation. It may be a formal contract or an informal provision of freely redistributable content. One of the parties may not know the other. Nevertheless, a relation exists and if needed we could make up an identifier for it, such as the contact number. PRL also assumes that its purpose is to reduce the costs of conformance to that relation. The working group explicitly rejected imposing any requirements on enforcing trusted commerce between unknown parties. Instead, the emphasis is on reducing the cost of compliance in common situations.

Organizations implementing DRM functionality are advised that several companies have obtained patents on various techniques for implementing such functionality. Implementers of DRM functionality may wish to investigate further, the PRISM Working Group takes no stance on such patents nor has it investigated it. ContentGuard is one company that has notified the working group that they hold such patents.

5.7.1 No Rights Information

In the example below, no rights information is provided for the Corfu photograph. Does the lack of explicit restrictions mean the sender gives the receiver permission to do everything with the image? Or does the lack of explicitly granted rights imply that they can do nothing? Neither. Instead, we rely on the assumption of an existing business relation. In the absence of specific information, parties in a PRISM transaction assume that the normal rules of their specific business relation apply.

```
<?xml version="1.0" encoding="UTF-8"?>
```

```
<rdf:RDF xmlns:prism="http://prismstandard.org/namespaces/1.2/basic/"
  xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  xmlns:dc="http://purl.org/dc/elements/1.1/">
  <rdf:Description rdf:about="http://wanderlust.com/2000/08/Corfu.jpg">
    <dc:identifier rdf:resource="http://wanderlust.com/content/2357845" />
    <dc:description>Photograph taken at 6:00 am on Corfu with two models
  </dc:description>
    <dc:title>Walking on the Beach in Corfu</dc:title>
    <dc:creator>John Peterson</dc:creator>
    <dc:contributor>Sally Smith, lighting</dc:contributor>
    <dc:format>image/jpeg</dc:format>
  </rdf:Description>
</rdf:RDF>
```

Example 10: No Explicit Rights

5.7.2 Basic Rights Information

While descriptions without any explicit rights information are possible, the working group decided there were some fields that were likely to be very commonly used. Those are provided in the PRISM namespace. Example 11 provides a copyright statement and contact information for the agency representing Wanderlust if someone wants to license the image for reuse.

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE rdf:RDF [
<!ENTITY copy "&#169;">
]>
<rdf:RDF xmlns:prism="http://prismstandard.org/namespaces/1.2/basic/"
        xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
        xmlns:dc="http://purl.org/dc/elements/1.1/">
  <rdf:Description rdf:about="http://wanderlust.com/2000/08/Corfu.jpg">
    <dc:identifier rdf:resource=" http://wanderlust.com/content/2357845" />
    <prism:copyright>&copy; Copyright 2001, Wanderlust Publications. All
      rights reserved.</prism:copyright>
    <prism:rightsAgent>Phantasy Photos, Philadelphia</prism:rightsAgent>
  </rdf:Description>
</rdf:RDF>
```

Example 11: Copyright and Rights Agent

5.7.3 Specific Rights Information

PRISM also allows more specific information about the rights that the sender is granting to the receiver. This is a very important change in the nature of the metadata being provided. Up to now, all the metadata has been descriptive of the resource, independent of the receiver. Specific rights information, however, can only be given in the context of a particular agreement between the sender and receiver. As an example, the stock photo agency representing Wanderlust may have negotiated a contract with a licensor of the image. They could then send the image, accompanied by a description that specifically identifies that contract:

```
<?xml version="1.0" encoding="UTF-8"?>
<rdf:RDF xmlns:prism="http://prismstandard.org/namespaces/1.2/basic/"
        xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
        xmlns:dc="http://purl.org/dc/elements/1.1/">
  <rdf:Description rdf:about="http://wanderlust.com/2000/08/Corfu.jpg">
    <dc:rights rdf:resource=
      "http://PhillyPhantasyPhotos.com/terms/Contract39283.doc"/>
  </rdf:Description>
</rdf:RDF>
```

Example 12: Citing a Specific Agreement

Example 12 specifically identifies the terms and conditions for reusing the image. That can make the process of manually tracking down rights and permissions a little easier since the contract number is known. It also lets software be written to enforce the terms of particular contracts.

The prospect of implementing software to enforce the terms of each contract is not enticing. So, PRISM provides some simple mechanisms to accommodate common cases without specialized software. One common case is when a publisher provides a large amount of material, such as the layouts for an entire magazine issue, to a partner publisher who will republish parts of it. Much of the content in the issue will be the property of the sending publisher, and covered under their business agreement with the receiving publisher. However, the issue will also contain stock photos and other materials that are not covered by the agreement. The example below shows how the controlled value #notReusable indicates to the receiver, travelmongo.com, that this item is not covered under

their agreement with the sender, Wanderlust. This is, in fact, a benefit to Wanderlust. Travelmongo.com will not ask Wanderlust staff to search for contract terms on images Wanderlust does not own – a considerable cost saving. The <rightsAgency> element is provided so that the receiver of a contact item has someone to contact should they wish to obtain the rights to use the non-Wanderlust content.

The description below also shows how the descriptions for multiple objects can be packaged into a single PRISM file shown in Example 13.

```
<?xml version="1.0" encoding="UTF-8"?>
<rdf:RDF xmlns:prism="http://prismstandard.org/namespaces/1.2/basic/"
        xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
        xmlns:dc="http://purl.org/dc/elements/1.1/">

  <!-- Description of first photo. -->
  <rdf:Description rdf:about="http://wanderlust.com/2000/08/Corfu.jpg">
    <dc:identifier rdf:resource=" http://wanderlust.com/content/2357845" />
    <prism:copyright>Copyright 2001, Wanderlust Publications. All
      rights reserved.</prism:copyright>
    <prism:rightsAgent>Phantasy Photos, Philadelphia</prism:rightsAgent>
  </rdf:Description>

  <!-- Description of second photo. -->
  <rdf:Description rdf:about="http://SunsetSnaps.com/20456382927.jpg">
    <dc:description>Sunset over Corfu</dc:description>
    <dc:rights rdf:resource=
      "http://prismstandard.org/vocabularies/1.2/rights.xml#notReusable"/>
    <prism:rightsAgent>Sunset Snaps, New York</prism:rightsAgent>
  </rdf:Description>
</rdf:RDF>
```

Example 13: Describing Multiple Items in a Single PRISM File

The interpretation of the dc:rights statement is that the image from Sunset Snaps is governed by a specific agreement. The URI reference of that agreement is:

<http://prismstandard.org/vocabularies/1.2/rights.xml#notReusable>.

That agreement, which all PRISM-compliant systems MUST recognize, simply means that there is no agreement to reuse the image. TravelMongo is, of course, free to work out an agreement with Sunset Snaps if they want to, but they do not need to ask Wanderlust about whether they can reuse the image.

5.7.4 Detailed Rights Information

Of course, content licensing deals are frequently more involved than an all-or-nothing arrangement. It is very common to restrict the uses by time, geography, intended use, and industry sector of use. More specialized restrictions are also possible, such as “may not be used on keychains”, but the PRISM Working Group decided there was no need to define a machine-operable way to encode such specialized restrictions.

Example 14 shows how Wanderlust, or their agent, might restrict the length of time that TravelMongo can use the Corfu photo .

```
<?xml version="1.0" encoding="UTF-8"?>
```

```
<rdf:RDF xmlns:prism="http://prismstandard.org/namespaces/1.2/basic/"
  xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  xmlns:dc="http://purl.org/dc/elements/1.1/">
  <rdf:Description rdf:about="http://wanderlust.com/2000/08/Corfu.jpg">
    <dc:identifier rdf:resource="http://wanderlust.com/content/2357845" />
    <dc:rights rdf:parseType="Resource">
      <prism:embargoDate>2001-02-01</prism:embargoDate>
      <prism:expirationDate>2001-02-28</prism:expirationDate>
    </dc:rights>
  </rdf:Description>
</rdf:RDF>
```

Example 14: Restriction Based on Time

In Example 14, the dc:rights element contains the elements that describe the rights and permissions . To decide which elements go inside a dc:rights element, consider if they are likely to change as a consequence of who the content is being licensed to. Copyright statements are not highly variable. Time restrictions are variable.

More complex rights agreements, with multiple clauses, can also be conveyed. The description below says that the Corfu image cannot be used in the Tobacco industry, can be used in the US anytime from now on, and can be used in Greece before the end of 2003. Those three clauses are captured in the three elements within the rdf:Bag element shown in Example 15.

```
<?xml version="1.0" encoding="UTF-8"?>
<rdf:RDF xmlns:prism="http://prismstandard.org/namespaces/1.2/basic/"
xmlns:prl="http://prismstandard.org/namespaces/1.2/prl/"
xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
xmlns:dc="http://purl.org/dc/elements/1.1/">
<rdf:Description rdf:about="http://wanderlust.com/2000/08/Corfu.jpg">
  <dc:identifier rdf:resource="http://wanderlust.com/content/2357845"/>
  <dc:rights xml:base="http://prismstandard.org/vocabularies/1.2/usage.xml">
    <rdf:Bag>
      <rdf:li rdf:parseType="Resource">
        <prl:usage rdf:resource="#none"/>
        <prl:industry rdf:resource=
          "http://prismstandard.org/vocabs/SIC/0132"/>
      </rdf:li>
      <rdf:li rdf:parseType="Resource">
        <prl:geography rdf:resource=
          "http://prismstandard.org/vocabs/ISO-3166/US"/>
        <prism:embargoDate>2001-01-01</prism:embargoDate>
      </rdf:li>
      <rdf:li rdf:parseType="Resource">
        <prl:geography rdf:resource=
          "http://prismstandard.org/vocabs/ISO-3166GR"/>
        <prism:expirationDate>2003-12-31</prism:expirationDate>
      </rdf:li>
    </rdf:Bag>
  </dc:rights>
</rdf:Description>
</rdf:RDF>
```

Example 15: Complex Rights Specification

5.7.5 Extending the PRISM Rights Language

As mentioned earlier, PRL is deliberately small. It can be extended by defining new elements and vocabularies to express new restrictions. New usage values could also be developed, but that is expected to be exceedingly rare.

As an example, a stock image provider will have some very common usage restrictions, and some very obscure ones, that need to be applied to images they license. The most common restrictions (time, place, industry) are already covered, but two that are not covered in PRL are audience size and manipulations applied to the photograph. Our example image provider, Sunset Snaps, could define two new RDF property types (snap:audienceSize and snap:manipulations) to represent those common restrictions. They would also define vocabularies of values for the elements, such as #flip, #rotate, or #falseColor, for the snap:manipulations element. There are more obscure conditions that require human evaluation. Popular supermodels may have

clauses in their contracts that prevent their images being used to advertise discount or close-out merchandise, or on inexpensive promotional items.

Sunset Snaps can define a number of clauses expressing these conditions and provide them, either by reference or in-line, as shown in Example 16.

```
<?xml version="1.0" encoding="UTF-8"?>
<rdf:RDF xmlns:prism="http://prismstandard.org/namespaces/1.2/basic/"
xmlns:prl="http://prismstandard.org/namespaces/1.2/prl/"
xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
xmlns:dc="http://purl.org/dc/elements/1.1/"
xmlns:snap="http://sunsetsnaps.com/rights/"
xml:lang="en-US">
<rdf:Description rdf:about="http://sunsetsnaps.com/Zing/asdf0838484">
  <dc:identifier rdf:resource="http://wanderlust.com/content/2357845"/>
  <dc:rights xml:base="http://sunsetsnaps.com/rights/">
    <rdf:Bag>
      <!-- Prohibit flips and recolorings -->
      <rdf:li rdf:parseType="Resource">
        <prl:usage rdf:resource="#none"/>
        <snap:manipulations rdf:resource="#flip">
      </rdf:li>
      <rdf:li rdf:parseType="Resource">
        <prl:usage rdf:resource="#none"/>
        <snap:manipulations rdf:resource="#falseColor">
      </rdf:li>
      <!-- Convey unusual conditions -->
      <rdf:li rdf:parseType="Resource">
        <prl:usage>Not to be used with discount merchandise.</prl:usage>
      </rdf:li>
    </rdf:Bag>
  </dc:rights>
</rdf:Description>
</rdf:RDF>
```

Example 16: Extending PRISM and PRL

5.7.6 Alternative Rights Languages

Recall that the dc:rights element may contain an rdf:resource attribute that is a URI reference to the agreement specifying the rights granted to the recipient by the sender. It is important to realize that the URL can identify rights agreements in any language or format, not just the PRISM Rights Language. The URL might point to a human-readable contract, or a machine-readable specification in a language such as XrML [XRML] or ODRL[ODRL]. PRISM implementations are NOT required to support any rights language, not even the PRISM Rights Language. They MAY support any number of formats for rights specifications. Applications which receive a rights statement in a format they cannot handle MUST raise an appropriate alert.

6 The PRISM Namespaces

PRISM is intended to be a modular specification; it is more likely that applications will use portions of PRISM than its entirety. The PRISM elements are separated into a series of functional namespaces, each covered in a separate normative specification. This section describes each, briefly, and provides a reference to the module specifications. For formal references to the namespaces, see PRISM Compliance, Table 2.

6.1 The PRISM Subset of the Dublin Core

PRISM includes a subset of Dublin Core elements for certain basic metadata. The normative definitions of the Dublin Core elements can be found in [DCMI]. The specific elements used in PRISM are listed in [PRISMDCNS]. The use of some DC elements is encouraged, others are discouraged, and others constrained.

6.2 The PRISM Namespace

PRISM extends its metadata element set beyond those selected from Dublin Core. The 'prism' namespace contains elements suitable for a wide range of content publication, licensing, and reuse situations. They are described in [PRISMPRISMNS].

6.3 The PRISM Rights Language Namespace

The PRISM Working Group has defined a small, simple, extensible language for expressing common rights and permissions. That language is known as the PRISM Rights Language (PRL). It's described in [PRISMLRNS].

6.4 The PRISM Inline Markup Namespace

Publisher members of the PRISM Working Group consistently identified a need for inline markup of organizations, locations, product names, personal names, quotations, etc. Such inline metadata was needed for a number of applications. Therefore, the PRISM Specification defines a namespace of XML elements and attributes for inline metadata; see [PRISMIMNS] for the normative description.

6.5 The PRISM Controlled Vocabulary Namespace

The PRISM Controlled Vocabulary provides a mechanism for describing and conveying all or a portion of a controlled vocabulary or authority file. This may be used to define entire new taxonomies, or it may be used to optimize the final speed of the system by caching useful information from externally-held vocabularies. It's described in [PRISMCVNS].

6.6 The PRISM Aggregator Message Namespace

PAM, the PRISM Aggregator Message, is the first application of PRISM elements in a structured message format. It is intended to codify the transmission of resources from publishers to aggregators. A small set of necessary additional elements were identified and documented, and they are covered in [PRISMAMNS]. The PAM message itself is described in detail in [PAMGUIDE].

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