
PRISM: Publishing Requirements for Industry Standard Metadata

Version 1.0

April 9, 2001

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This specification is freely redistributable, and conforming applications may be implemented without fee. Implementations may not add any elements, attributes, or other items to the PRISM namespaces and vocabularies. All additions, amendments, and alterations must be made in other XML namespaces.

For an ongoing list of known errors, workarounds, and issues for future work, please consult the errata page:

<http://www.prismstandard.org/errata/spec1.0/>

Abstract

The Publishing Requirements for Industry Standard Metadata (PRISM) specification defines a standard for interoperable content description, interchange, and reuse in both traditional and electronic publishing contexts. PRISM recommends the use of certain existing standards, such as XML, RDF, the Dublin Core, and various ISO specifications for locations, languages, and date/time formats. Beyond those recommendations, it defines a small number of XML namespaces and controlled vocabularies of values, in order to meet the goals listed above.

The PRISM working group, a joint effort of representatives from publishers and vendors in an initiative organized under IDEAlliance, prepared this specification. Comments for the working group may be spec-comments@prismstandard.org.

Status

This is the 1.0 release of the PRISM Metadata Specification. It has been tested in a number of implementations, and has been reviewed by numerous external parties. The working group recommends its implementation and adoption.

Implementers and reviewers of the 1.0 specification are advised to consult <http://www.prismstandard.org/errata/spec1.0/> to obtain corrections and updates to this specification.

Acknowledgements

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Working Group Members (Current and former)

Donald Alameda	Sothebys.com	(Integrated Automata)
Paula Angerstein	Vignette Corporation	(Founding Member)
Anna Bjarnestam	Getty Images Inc.	(Founding Member)
Linda Burman	Kinecta Corporation and L. A. Burman Associates Inc.	(Co-chair and Working Group Founder)
Dianna Calleson	Adobe Systems, Inc.	
Kevin Childress	Business Wire Inc.	(Liaison Member from the IPTC)
Corilee Christou	Cahners Business Information	
Zachary Coffin	KPMG	
Ron Daniel Jr.	Interwoven Inc.	(Co-chair and Co-editor)
Ari Davidow	ITWorld	(IDG Publications)
Charlie Evett	MarketSoft	(Founding Member)
Jeff Field	Reuters	(Liaison Member from the IPTC)
Lisa Frumkes	Getty Images	
Chris Green	Time Inc.	(Founding Member)
Deren Hansen	Cogito Inc.	(Co-editor, formerly of Wavo Inc., Founding Member)
Rick Holt	Cahners Business Information	(Founding Member)
Paul Kramer	Condé Nast Publications	
Peter Meirs	Time Inc.	(Founding Member)
Roger Medlin	Artesia Technologies, Inc.	(Founding Member)
Glen Ochsenreiter	iCopyright.com	
Charles Olson	Artesia Technologies, Inc.	
Cameron Pope	CreoScitex	(co-editor, formerly of Quark, Inc.)
Laird Popkin	Sothebys.com	
Howie Rafal	Banta New Media, Inc.	
Jay Rothschild	eLogic, Inc.	(A wholly owned subsidiary of Cahners Business Information)
Justin Scroggs	Time Inc.	

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Part I: Introduction and Overview

(non-normative)

1 Introduction

1.1 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.

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 ICE 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.

1.2 Relationship to Other Specifications

1.2.1 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].

1.2.2 Resource Description Framework (RDF)

The Resource Description Framework [W3C-RDF] defines a model and XML syntax to represent and transport metadata. PRISM uses a simplified profile of RDF for its metadata framework. Thus, PRISM 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.

1.2.3 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.

1.2.4 NewsML

NewsML [IPTC-NEWSML] is a standard 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. 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.

1.2.5 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.

1.2.6 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.

The two working groups have recently defined the means for PRISM to describe ICE items and for ICE to convey PRISM descriptions.

1.2.7 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 rich negotiation and reliable delivery features of ICE.

1.2.8 eXtensible Rights Markup Language (XrML)

XrML [XRML] is a specification developed by ContentGuard, Inc. It specifies the behavior of trusted digital rights management systems and repositories. Unlike XrML, PRISM 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. XrML takes on a much harder problem, controlling the behavior of end-user applications and devices such as printers and tape drives to prevent unauthorized reuse

of the content. PRISM specifies as little as possible about the internal behavior of systems. Thus, PRISM's treatment of derivative use rights is complimentary to, but separate from, the rights and uses that are specified in XrML.

1.2.9 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 mapping¹ between the XTM format and the PRISM group's simple XML format for controlled vocabularies.

1.3 Additional Issues

1.3.1 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.

1.3.2 Exchange Mechanisms

PRISM specifies a file format, and does not define or impose any particular exchange mechanism. There are many ways to exchange the descriptions and the content they describe. Developers of such exchange 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.
- 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.

1.3.3 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).

¹ XSLT stylesheets implementing that mapping will be provided in the PRISM implementer's cookbook.

1.3.4 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.

1.4 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 specification.

Authority File	One of the forms of a <i>controlled vocabulary</i> , 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 <i>resource</i> 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 - <i>authority files</i> and <i>taxonomies</i> .
Metadata	Information about a <i>resource</i> . In this specification, metadata is expressed as one or more <i>properties</i> .
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 <i>statement</i> 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.

1.5 Structure of this Document

The document is organized into two parts, plus an appendix. Part 1 is non-normative, providing an introduction to, and tutorial overview of, the specification. Despite being non-normative, there are occasional statements using the key words MUST, SHOULD, MAY, etc. Those statements will be repeated in Part 2, the normative portion of the specification.

Part 1 contains three sections. Section 1 provides this general introduction and establishes some of the context for the PRISM specification. Section 2 provides a tutorial for the major features of the spec, using a series of examples around a common scenario. Section 3 provides a quick reference to the elements defined in the specification, organized by functional group. Because elements can be used for multiple functions, they may be repeated in multiple tables.

Part 2 also contains three sections. Section 4 describes PRISM's framework for identifiers, its profile (restricted subset) of RDF, and various other normative requirements on instances of the PRISM format. Section 5 gives normative definitions for the XML elements and attributes in the namespaces PRISM defines. Non-normative definitions, along with PRISM-recommended cataloging rules, are provided for the XML elements and attributes from namespaces PRISM recommends, but does not define, such as the Dublin Core. Section 6 defines vocabularies that PRISM uses as controlled values for various properties.

Appendix A provides a bibliography, which is also divided into normative and non-normative sections.

2 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 using 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. 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.

2.1 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.

2.2 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/">
  <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>
```

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-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.

PRISM descriptions are compliant with the RDF constraints on the XML syntax. Thus, they begin with the `rdf:RDF` element.

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

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 the PRISM namespace, `pcv:Descriptor`, does so. PRISM uses a simple naming convention. We avoid abbreviations, use American English spelling, and make the element names into nouns (or pseudoNounPhrases, because of the case convention) in singular form.

PRISM uses the convention of placing property values that are URI references, such as in the `dc:identifier` element in the example above, in the `rdf:resource` attribute. 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.

2.3 Embedded vs. External Metadata

For the most part, PRISM assumes that its descriptions are transferred as complete, standalone, XML documents that describe other files. But it is also possible to embed PRISM descriptions in a file. The example below shows a sample of a simple XML file, which contains an embedded PRISM description

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

2.3.1 A Brief Digression on Identifiers

Note that the empty string is given as the value of the `rdf:about` attribute. 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. So, 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.

It is also possible to use the new `xml:base` attribute [W3C-XML-BASE] to set the base URI reference. That attribute will be used in several examples in this document. However, readers are cautioned that the XML BASE specification is not yet a full Recommendation of the W3C, although it seems very likely to be passed in its current form. Readers are also cautioned that because it is so new, very few XML implementations will support it at this time. Therefore, creators of PRISM descriptions should be cautious about using it for the near future.

2.3.2 A Brief Digression on Intent

This example 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.

2.4 Controlled Vocabularies

Property values in PRISM may be strings, as shown above, or may be terms from controlled vocabularies. 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 example 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>
```

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 the 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. Others elements will use controlled vocabularies created and maintained by third parties, such as the International Standards Organization (ISO). Site-specific controlled vocabularies, such as from employee or customer databases, may also be used at the risk of limiting interoperability.

As another example, 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>

```

2.4.1 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:

```

...2
<pcv:Descriptor rdf:ID="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="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>
...

```

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 above 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.

2.4.2 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:

² Note that all the identifiers in this extract from the exportable database are relative URIs. This implies that an `xml:base` was made earlier in the file so that the URIs do not change depending on the systems containing the file.

```
<?xml version="1.0" encoding="UTF-8"?>
<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  xmlns:pcv="http://prismstandard.org/namespaces/pcv/1.0/"
  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">Grece</pcv:label>
      </pcv:Descriptor>
    </dc:coverage>
  </rdf:Description>
</rdf:RDF>
```

This approach uses the `pcv:Descriptor` element, which is a subclass³ 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.

2.5 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>
```

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>
```

2.6 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:

³ This is a subclass in the RDF Schema [W3C-RDF-Schema] sense of the term. This document does not cite the RDF Schema document in a normative way, since that document is not yet a full W3C Recommendation. However, once a full Recommendation is created, it is expected to define the `subClass` predicate so we go ahead and use that term in this section. For more on the RDF Schema relations of various PRISM terms, see **Error! Reference source not found.**

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 Table 17: 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, or many other ways. The type of presentation used in a resource is indicated by the `dc:type` element and the values listed in Table 16: Controlled Vocabulary of Presentation Styles.

For example, consider three different images – a JPEG photograph of a landscape, a PNG image of a political cartoon, and a PNG image of a graph from a financial statement. Table 1: Sample of Image ‘Types’ shows how those facts would be recorded in PRISM descriptions. Distinguishing these various facets will be helpful in advanced searching applications.

Table 1: Sample of Image ‘Types’

	dc:format	dc:type	prism:category
Image 1	image/jpg	Photo	n.a.
Image 2	image/png	illustration	cartoon
Image 3	image/png	Graph	financialStatement

2.7 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 select one of the current XML 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. It focused on specifying a small set of elements that would encode the most common rights information to serve as an interim measure for interoperable exchange of 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. 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.

2.7.1 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/1.0#"
  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>
```

2.7.2 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. The example below provides a copyright statement⁴ and contact information for the agency representing Wanderlust if someone wants to license the image for reuse.

```
<?xml version="1.0" encoding="UTF-8"?>
<rdf:RDF xmlns:prism="http://prismstandard.org/1.0#"
  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>Copyright 2001, Wanderlust Publications. All
      rights reserved.</prism:copyright>
    <prism:rightsAgent>Phantasy Photos, Philadelphia</prism:rightsAgent>
  </rdf:Description>
</rdf:RDF>
```

2.7.3 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:

⁴ Implementers and users are advised not to use the © character entity to put copyright symbols ‘©’ into copyright statements. Many XML parsers do not have that character entity predefined. Implementations should use the numeric character entity “©” instead.

```
<?xml version="1.0" encoding="UTF-8"?>
<rdf:RDF xmlns:prism="http://prismstandard.org/1.0#"
  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>
```

This 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:

```
<?xml version="1.0" encoding="UTF-8"?>
<rdf:RDF xmlns:prism="http://prismstandard.org/1.0#"
  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>Copyright 2001, Wanderlust Publications. All
      rights reserved.</prism:copyright>
    <prism:rightsAgent>Phantasy Photos, Philadelphia</prism:rightsAgent>
  </rdf:Description>

  <rdf:Description rdf:about="http://SunsetSnaps.com/20456382927.jpg">
    <dc:description>Sunset over Corfu</dc:description>
    <dc:rights rdf:resource=
      "http://prismstandard.org/vocabularies/1.0/rights.xml#notReusable"/>
    <prism:rightsAgent>Sunset Snaps, New York</prism:rightsAgent>
  </rdf:Description>
</rdf:RDF>
```

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/1.0/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.

2.7.4 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.

The example below shows how Wanderlust, or their agent, might restrict the length of time that TravelMongo can use the Corfu photo⁵.

```
<?xml version="1.0" encoding="UTF-8"?>
<rdf:RDF xmlns:prism="http://prismstandard.org/1.0#"
  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:releaseTime>2001-02-01</prism:releaseTime>
      <prism:expirationTime>2001-02-28</prism:expirationTime>
    </dc:rights>
  </rdf:Description>
</rdf:RDF>
```

In that example, the `dc:rights` element contains the elements that describe the rights and permissions⁶. 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 industry⁷, 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.

⁵ For details on the evaluation of the PRL rights expressions, see section 15.4 PRISM Rights Language.

⁶ Sharp-eyed readers familiar with RDF may have noticed that the RDF subject of the `releaseTime` and `expirationTime` elements is not the Corfu photo, but an anonymous node. That is because those elements do not directly describe the photo. Instead, their interpretation is that the agreement governing the use of the photo imposes such a condition. This interpretation is also used in the `geography`, `industrySector`, and `usage` elements shown in the next example.

⁷ That restriction is established by the use of the `#none` value in the first `<prl:usage>` element. Note that the new XML Base mechanism was used to abbreviate the full URI of `#none`. Not all RDF parsers will support the new XML Base standard, so it is safer not to use it. However, it makes the URIs and examples shorter, so we use it to simplify the exposition.

```

<?xml version="1.0" encoding="UTF-8"?>
<rdf:RDF xmlns:prism="http://prismstandard.org/namespaces/basic/1.0/"
  xmlns:prl="http://prismstandard.org/namespaces/prl/1.0/"
  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/1.0/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:releaseTime>2001-01-01</prism:releaseTime>
      </rdf:li>
      <rdf:li rdf:parseType="Resource">
        <prl:geography rdf:resource=
          "http://prismstandard.org/vocabs/ISO-3166GR"/>
        <prism:expirationTime>2003-12-31</prism:expirationTime>
      </rdf:li>
    </rdf:Bag>
  </dc:rights>
</rdf:Description>
</rdf:RDF>

```

2.7.5 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 below.

```
<?xml version="1.0" encoding="UTF-8"?>
<rdf:RDF xmlns:prism="http://prismstandard.org/namespaces/basic/1.0/"
  xmlns:prl="http://prismstandard.org/namespaces/prl/1.0/"
  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/">
  <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:industry rdf:resource="#flip">
        </rdf:li>
        <rdf:li rdf:parseType="Resource">
          <prl:usage rdf:resource="#none"/>
          <snap:industry 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>
```

3 Elements by Functional Group

This section provides summary tables of the elements specified by the PRISM working group, organized by the purpose(s) for which they are intended. This is intended to be a handy reference. The full, normative, definition of the elements appears in Section 5 “Element Definitions”.

3.1 General Purpose Elements

These elements from the Dublin Core form the basis for PRISM’s descriptive metadata. Many descriptions will need only a few elements from this table.

Table 2: General Purpose Descriptive Elements

Element	Role
dc:identifier	Identifier(s) for the resource.
dc:title	The name by which the resource is known.
dc:creator	The primary creator(s) of the intellectual content of the resource.
dc:contributor	Additional contributors to the creation or publication of the resource.
dc:language	The principal language of the resource.
dc:description	A description of the resource.
dc:format	The file format of the resource. Values from the Internet Media Types are recommended.
dc:type	The style of presentation of the resource’s content, such as image vs. sidebar.
prism:category	The genre of the resource, such as election results vs. biographies.

3.2 Provenance

These elements describe the supply chain for a resource to indicate what the source material for a resource was and through which organizations the resource has passed. PRISM uses the `dc:source` property to identify the original basis for the resource, the `dc:publisher` property to identify the primary provider of the information (such as a major wire service), and the `prism:distributor` property to identify other members of the distribution chain, if any.

Table 3: Elements for Provenance Information

Element	Role
dc:publisher	An identifier for the supplier of the resource.
prism:distributor	An identifier for the distributor of the resource.
dc:source	An identifier for source material for the resource.

3.3 Timestamps

There are several times that mark the major milestones in the life of a news resource: The time the story is published, the time it may be released (if not immediately), the time it is received by a customer, and the time that the story expires (if any). Dates and times should be represented using the W3C-defined profile of ISO 8601 [W3C-NOTE-datetime].

Table 4: Elements for Time and Date Information

Element	Role
prism:creationTime	Date and time the identified resource was first created.
prism:expirationTime	Date and time when the right to publish material expires.
prism:modificationTime	Date and time the resource was last modified.
prism:publicationTime	Date and time when the resource is released to the public.
prism:releaseTime	Earliest date and time when the resource may be distributed.
prism:receptionTime	Date and time when the resource was received on current system.

3.4 Subject Description

These elements describe the subject matter of a resource. Experience has shown that there are many different kinds of subjects. People, places, things, events, ... are all possible subcategories of 'subject'. Best practice is for subject description elements to reference controlled vocabulary terms such as the IPTC Subject Reference System. If that is not possible, `dc:subject` can also contain a prose description of the subject.

Table 5: Elements for Describing the Subject of a Resource

Element	Role
dc:coverage	Indicates geographic locations or periods of time that are subjects of the resource. For example, "20th Century". The <code>prism:location</code> element is preferred for geographic subjects.
dc:subject	The subject of the resource.
dc:description	Prose description of the content of the resource.
prism:event	An event referred to in or described by the resource.
prism:industry	An industry referred to in or described by the resource.
prism:location	A location referred to in or described by the resource.
prism:person	A person referred to in or described by the resource.
prism:organization	An organization referred to in or described by the resource.

3.5 Resource Relationships

Published content has a wide variety of relations to other content items. There are containment relations – such as article containing a photo, story text and caption. There are version relations – such as a resource being a corrected version of another resource. There are alternative formats – such as a Word document also existing in HTML, XML and PDF. There are alternatives – such as an image that cannot be reused having alternatives that can. Many other types of relations exist. Many of the relations provided come from work undertaken by the Dublin Core Metadata Initiative and documented in the Relations Working Draft [DCMI-R].

Table 6: Elements to Convey Relations Between Resources

Element	Role
prism:isPartOf	The described resource is a physical or logical part of the referenced resource.
prism:hasPart	The described resource includes the referenced resource either physically or logically.
prism:isVersionOf	The described resource is a version, edition, or adaptation of the referenced resource. Changes in version imply substantive changes in content rather than differences in format.
prism:hasVersion	The described resource has a version, edition, or adaptation, namely, the referenced resource. Changes in version imply substantive changes in content rather than differences in format.
prism:isFormatOf	The described resource is the same intellectual content of the referenced resource, but presented in another format.
prism:hasFormat	The described resource pre-existed the referenced resource, which is essentially the same intellectual content presented in another format.
prism:references	The described resource references, cites, disputes, or otherwise points to the referenced resource to acknowledge intellectual precedence.
prism:isReferencedBy	The described resource is referenced, cited, or otherwise pointed to by the referenced resource.
prism:isBasedOn	The described resource is a performance, production, derivation, translation, adaptation or interpretation of the referenced resource.
prism:isBasisFor	The described resource has a performance, production, derivation, translation, adaptation or interpretation, namely the referenced resource.
prism:isTranslationOf	The described resource is a human-language translation of the referenced resource.
prism:hasTranslation	The described resource has been translated into an alternative human-language. The translated version is the referenced resource.
prism:requires	The described resource requires the referenced resource to support its function, delivery, or coherence of content.
prism:isRequiredBy	The described resource is required by the referenced resource, either physically or logically.
prism:isAlternativeFor	The described resource can be substituted for the referenced resource.
prism:hasAlternative	The described resource has an alternative version that can be substituted, namely the referenced resource.
prism:isCorrectionOf	The described resource is a corrected version of the referenced resource.
prism:hasCorrection	The described resource has a correction, namely the referenced resource.

3.6 Rights and Permissions

The PRISM rights and permissions vocabulary is designed to facilitate reuse and clearance processes for parties with established business relationships by explicitly specifying the rights and/or restrictions connected with a resource. PRISM is NOT concerned with digital rights enforcement. PRISM does not specify policy or provide instructions to trusted viewers and repositories on how they should behave. PRISM also does not specify fee or payment details. Other efforts, such as XrML, are attempting to meet those needs, although there are no widely adopted solutions at this time.

The design goals of rights and permissions are:

- To be able to describe reuse rights in a precise and consistent manner.
- To make simple cases such as no rights or unrestricted use simple to specify
- To provide the capability to indicate common types of uses or restriction.

- To allow for graceful evolution to future accepted standards for specifying rights.

It is important to note that rights and permissions metadata is usually intended for a particular receiver, unlike elements such as “title” which are expected to be almost invariant.

Table 7: Elements for Specifying Rights and Permissions Information

Term	Role
dc:rights	Container element for specific rights data
prism:copyright	A copyright statement for this resource.
prism:expirationTime	Time at which the right to reuse expires.
prism:releaseTime	Time as which the right to reuse a resource begins, and the resource may be published.
prism:rightsAgent	Name, and possibly contact information, for the agency ⁸ to contact to determine reuse conditions if none specified in the description are applicable.
prl:geography	Specifies geographic restrictions.
prl:industry	Specifies restrictions on the industry in which the resource may be reused.
prl:usage	Specifies ways that the resource may be reused.

Note that in addition to the elements summarized in the table above, the PRISM Rights Language uses a small controlled vocabulary to provide well-known values for the `prl:usage` element. The values in it are:

Table 8: Predefined Usages

Term	Definition
#none	No use can be made of the resource under the specified conditions.
#use	The resource can be used under the specified conditions. The limits on the use of the resource are not further specified in the PRISM description and the relevant licensing agreement must be consulted.
#notApplicable	The conditions on use are not applicable to the current state of the system and the intended use(s) of the resource.
#permissionsUnknown	It is not known whether the resource may be used. Proceed at own risk.

3.7 Controlled Vocabularies

Many elements in PRISM-approved or PRISM-extended namespaces take values that are intended to come from *controlled vocabularies*. Controlled vocabularies are lists of terms that are updated through a defined and managed procedure. More formally, then entries in a vocabulary are known as *taxons*, since there may be more than one term used for that entry in the vocabulary. For example, “Greece” in English and “Grece” in French are two terms for the same taxon.

The list of taxons may be hierarchically structured subject classification systems like the Dewey Decimal Classification, or they may be simple lists of names of companies, people, places, etc. The vocabulary may come from an external source, or be derived from internal sources such as a company's database systems.

The PRISM specification provides a separate namespace of RDF Property Types for describing taxons in a controlled vocabulary⁹. That namespace is the PRISM Controlled Vocabulary (PCV) namespace. Information about the taxon beyond that provided in the PCV namespace can be handled through the normal extension mechanism of new Property Types.

⁸ Agency, in this case, may frequently be the publisher or creator of the resource.

⁹ Either the 1.0 version of the spec, or the subsequent cookbook, will contain a non-normative appendix with XSLT stylesheets for converting vocabularies using the PCV elements into ones that follow the XTM Topic Maps Specification. The current XTM spec does not comply with the 1.0 version of the RDF Syntax, but there is an obvious and simple mapping between the two syntaxes.

Table 9: Elements for Defining and Describing Controlled Vocabulary Entries

Element	Role
pcv:broaderTerm	Links to a broader (more general) concept in a vocabulary. For example, from the taxon for 'Dog' to the taxon for 'Mammal'. Multiple broaderTerm links are allowed.
pcv:code	Provides the unique identifier for the term.
pcv:definition	Provides a human-readable definition for the item in the vocabulary. Multiple definitions can be provided with different xml:lang attributes.
Pcv:Descriptor	Grouping element for the information describing or defining a taxon. The definition of a taxon MUST include a unique URI reference so that the taxon can be unambiguously identified.
pcv:label	Provides a human-readable label for the preferred name(s) of the taxon. Multiple labels can be provided, usually with different xml:lang attributes.
pcv:narrowerTerm	Links to a narrower (more specific) concept in the vocabulary. For example, from the taxon 'Dog' to the taxon 'Dalmatian'. Multiple narrowerTerm links are allowed.
pcv:relatedTerm	Links to a 'related term' in the vocabulary, where the nature of the relation is not specified.
pcv:synonym	Provides alternate human-readable labels (synonyms) for the same property.
pcv:vocabulary	Provides a human-readable string identifying the vocabulary from which the term comes.

3.8 PRISM In-line Markup

Important information, such as dates and the names of people, places, and things, occurs in the text of an article. Some organizations prefer to mark that data in-line rather than create a large set of subject description elements. PRISM provides the following elements for inline markup. These can be mixed into DTDs that specify the allowed structure of the document.

Table 10: Elements for In-Line Markup of Named Entities

Element	Role
pim:location	Marks a geographical location.
pim:objectTitle	Marks the title of a book, film, painting, product, etc.
pim:organization	Marks the name of a government, department, company, charity, club, or any other organization.
pim:person	Marks the name of a person (real or imaginary).
pim:quote	Marks the words attributed to a specific person.

Note that some of these elements, `pim:quote` in particular, have several attributes that provide additional information.

Part II: Normative Specification

4 Framework

4.1 Requirement Wording Note

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [RFC-2119]. The PRISM specification also uses the normative term, "STRONGLY ENCOURAGES," which should be understood as a requirement equivalent to MUST in all but the most extraordinary circumstances.

Capitalization is significant; lower-case uses of the key words are intended to be interpreted in their normal, informal, English language way.

4.2 Behavior of PRISM-compliant Software

The PRISM specification defines the format of XML content exchanged between systems. It constrains the behavior of those systems as little as possible.

Discarding metadata is discouraged but not forbidden. A major cost occurs when metadata has to be recreated after it was discarded earlier in the production process. Therefore implementations MAY retain and retransmit any information that they do not know is actually wrong.

Novel elements and attributes MAY be added to PRISM descriptions. PRISM-compliant software MUST be capable of detecting such novel elements and attributes. It MUST NOT throw an error when a novel element is encountered. The PRISM working group recommends, in keeping with the recommendation above, that implementations MAY retain the novel information and pass it along.

Novel elements and attributes MUST NOT be added to PRISM namespaces and vocabularies or the Dublin Core namespace. One or more new XML namespaces MUST be defined for novel elements and attributes.

4.3 Identifying PRISM Content

The Internet Media Type (aka MIME type)[IETF-MIMETYPES] for PRISM descriptions is¹⁰ "application/prism+rdf+xml". When PRISM descriptions are stored as XML files, the preferred filename extension is ".prism". When neither of those two identification methods are appropriate, the content can be scanned for occurrences of the URI "http://prismstandard.org/namespaces/1.0/basic/" used as a namespace URI in an XML documents. Such documents are considered to be PRISM content.

4.4 Namespace and Vocabulary Identifiers

Systems that implement this specification MUST recognize and support at least the first four namespaces in the table below. Systems offering inline markup MUST support the fifth. Systems supporting the more expressive rights language MUST support the sixth. Systems MAY use the namespace declarations below in order to use familiar prefixes.

¹⁰ Registration of this media type is in progress.

Table 11: Namespaces Used In PRISM Descriptions

Namespace	Recommended Namespace Declaration
Resource Description Framework	<code>xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"</code>
Dublin Core	<code>xmlns:dc="http://purl.org/dc/elements/1.1/"</code>
PRISM	<code>xmlns:prism="http://prismstandard.org/namespaces/1.0/basic/"</code>
PRISM Controlled Vocabulary	<code>xmlns:pcv="http://prismstandard.org/namespaces/1.0/pcv/"</code>
PRISM Inline Markup	<code>xmlns:pim="http://prismstandard.org/namespaces/1.0/pim/"</code>
PRISM Rights Language	<code>xmlns:prl="http://prismstandard.org/namespaces/1.0/prl/"</code>

The PRISM specification also defines a number of controlled vocabularies. The base URIs for those vocabularies are:

Table 12: Base URIs for PRISM Controlled Vocabularies

Vocabulary Name	Base URI
Content Categories (genres)	http://prismstandard.org/vocabularies/1.0/category.xml
Resource Types (presentation types)	http://prismstandard.org/vocabularies/1.0/resourcetype.xml
PRL Usage Types	http://prismstandard.org/vocabularies/1.0/usage.xml
PRISM Rights	http://prismstandard.org/vocabularies/1.0/rights.xml

All PRISM-compliant systems MUST recognize the #notReusable entry in the PRISM Rights vocabulary and handle it appropriately.

In addition to the PRISM-defined vocabularies, a number of other vocabularies and data formats are recommended by PRISM as current best practice. Those are:

4.4.1 Date-time

PRISM-compliant applications sending metadata to other systems are STRONGLY ENCOURAGED to use the W3C profile of ISO 8601 [W3C-DateTime] as the format of their date and time values. Implementers are advised, however, that this specification may be supplanted in the future by one which allows features such as ranges of times, or the use of the `tz` library's method of specifying time zone offsets as strings composed of Continent/City. So implementations SHOULD be able to deal with other forms.

4.4.2 Locations

PRISM-compliant applications sending metadata to other systems are STRONGLY ENCOURAGED to use the codes from [ISO-3166] as the values for the `<prism:location>` and `<prl:geography>` elements.

ISO has not yet defined a standard URI convention for those codes. In order to maximize interoperability, implementations MAY wish to use the following non-resolvable URLs¹¹.

`http://prismstandard.org/vocabs/ISO-3166/XX`

where XX is a 2-letter uppercase country code, and

`http://prismstandard.org/vocabs/ISO-3166-2/XX-YYY`

where XX is as above and YYY is a one to three-character alphanumeric subregion code.

4.4.3 Industrial Sector

PRISM-compliant applications sending metadata to other systems MAY wish to use the industry sector codes from [NAICS] as the values for the `<prism:industry>` element and `<pim:industry>`'s `href` attribute.

¹¹ These URLs are non-resolvable for copyright reasons.

4.5 Identifiers

PRISM files use the `rdf:about` attribute on `rdf:Description` elements to specify the resource being described. The value of the `rdf:about` attribute **MUST** be a URI reference [RFC-2396]. The `dc:identifier` element **MUST** be used to contain any additional identifiers to be sent, or any identifiers that cannot be represented as a URI reference¹². For example, a resource can be identified by a URI and by an internal asset ID that an organization would use to access it in their database. PRISM-compliant applications are **STRONGLY ENCOURAGED** to maintain the unique identifier(s) provided for a resource.

PRISM's only policy on the assignment of identifiers is that the party assigning an identifier **MUST NOT** assign the same identifier to a different resource, using whatever definition of 'different' the assigning party deems appropriate.

PRISM systems **MUST** regard two resources as being 'the same' if they have the same unique identifier. The party assigning the identifier is the sole arbiter of what they mean by 'the same'. Note that this definition does not imply that two resources are different if their identifiers are different. Different identifiers **MAY** (and frequently will) be assigned to the same resource.

PRISM does not require that all resources carry the same identifier through their entire lifecycle. However, if the publisher assigns a new identifier to non-reusable content obtained from an external party, the publisher **SHOULD** retain information on the origin and licensing of the resource so that someone later in its lifecycle can determine how to obtain the rights to reuse it.

4.6 Cardinality and Optionality

All PRISM descriptions **MUST** contain at least one identifier for the resource being described, expressed in the `rdf:about` attribute. Any number of additional identifiers **MAY** be expressed in `dc:identifier` elements. The identifier in the `rdf:about` attribute is the only mandatory field in a PRISM description. However, at least one other field **MUST** be specified in a description in order to have a meaningful model.

All Dublin Core elements are optional, and may be repeated any number of times¹³. Unless specifically noted otherwise, PRISM elements are also optional and may occur any number of times in a description.

4.7 Automatic Creation of Inverse Relations

PRISM includes elements for specifying relations between resources (e.g. `Resource1 isVersionOf Resource2`). Those relations have inverse relations that are also in the PRISM specification (e.g., `Resource2 hasVersion Resource1`).

PRISM-compliant systems which receive one side of such a relation **MAY** infer the presence of the additional inverse relation. To be more specific, if the implementation tracks the origin of individual RDF statements and can segregate its database in order to undo the addition of such inferred inverses, it

¹² Note that URI references include the forms commonly known as "relative URLs", which allow considerable syntactic freedom. Therefore, almost all identifiers can fulfill the requirement to be a URI reference. Resolving such identifiers, of course, may require special handling.

¹³ Dublin Core implementations based on relational databases typically find this condition to be surprising. Implementers are reminded that PRISM specifies a file format, and does not constrain what implementations do with that data.

SHOULD infer the inverse and keep it segregated from the original input. If an implementation does not track individual statements and sources, it MAY infer the inverse relations but is cautioned about the possibility of data corruption.

4.8 PRISM Profile of the Resource Description Framework

The Resource Description Framework (RDF) has been standardized by the W3C to provide a general framework for metadata. As such, its capabilities exceed those required by PRISM. Therefore, this document specifies a ‘profile’ – a restricted subset – of RDF that all PRISM-compliant software MUST support. This profile excludes certain capabilities of RDF that are not needed in PRISM applications, thus simplifying the development of PRISM applications¹⁴.

Applications conforming to the PRISM specification MUST produce correct RDF documents that can be read by any RDF-compliant software. They MUST also produce documents that conform to the PRISM profile of RDF. PRISM-compliant software does not have to be capable of processing arbitrary RDF documents.

4.8.1 Constraint 1: Top-level structure of Descriptions

The formal grammar for RDF [W3C-RDF] specifies:

```
[6.1] RDF ::= ['<rdf:RDF>'] obj* ['</rdf:RDF>']
[6.2] obj ::= description | container
```

For PRISM descriptions, the `rdf:RDF` wrapper element is required, and its child elements are restricted to being `rdf:Description` elements. The production that replaces productions 6.1 and 6.2 for PRISM systems is:

```
RDF ::= '<rdf:RDF' namespace_decls '>' description+ '</rdf:RDF>'
```

4.8.2 Constraint 2: `rdf:aboutEachPrefix` disallowed

PRISM descriptions MUST NOT use the `rdf:aboutEachPrefix` attribute. Production [6.8] of the RDF M&S specification thus becomes:

```
AboutEachAttr ::= ' aboutEach="' URI-reference '"'
```

4.8.3 Further Qualifications

No other overall restrictions in the allowed RDF syntax are specified in this section. However, implementers are advised to pay particular attention to the following points:

Many elements, such as `dc:subject`, may take a string as a value, or may use a URI for identifying an element in a controlled vocabulary of subject description codes. The URI may be a simple reference, or may provide an inline description of the controlled vocabulary term. Implementations MUST be capable of handling all three of those cases reliably.

Implementers must decide how their system will deal with unsupported descriptive elements. The PRISM specification does not preclude other descriptive elements, although their interoperability cannot be guaranteed. PRISM implementations MAY retain unknown descriptive elements and retransmit them¹⁵.

¹⁴ Early drafts of this specification assumed that people would not have ready access to RDF-parsing software, and attempted to reduce the complexity of the syntax generated. Since this project was begun, a number of freeware and commercial RDF parsers have become available, so we no longer make simplifications for that purpose.

¹⁵ Actually, that practice is recommended, though not mandated. Much of the resilience and extensibility of the Domain Name System (DNS) has been attributed to its simple rule that if intermediate systems don’t understand a record, they just pass it on through. That rule lets up-to-date endpoints communicate without having all intermediate points updated.

To aid automated processing of PRISM metadata, this specification defines a separate namespace for PRISM elements suitable for in-line markup. Thus, `prism:organization` is an RDF statement and `pim:organization` is used as in-line markup.

The PRISM working group encourages implementers to keep the generated markup as simple as possible. As an example, if a work has multiple authors, RDF allows that situation to be encoded in two ways, which have slightly different meanings. The first way uses multiple `dc:creator` elements, each listing a separate author. The second way is to have a single `dc:creator` element, which then contains one of RDF's collection constructs, such as `rdf:Bag`. That, in turn, would list the different authors. According to the RDF specification, the first is to be used when the authors acted as a collection of individuals in the creation of a work. The second is to be used when the authors acted as a committee. Experience has shown, however, that this distinction is too subtle for human catalogers to make reliably. The PRISM working group recommends using the first approach in most cases.

Note that although a sequence of `dc:creator` elements in an RDF/XML file implicitly defines a sequence (in the XML world), RDF parsers have no obligation to preserve that ordering, unlike if an explicit `rdf:Seq` were given. PRISM implementors are advised that there are quality of implementation issues between different RDF processors. In general, implementers MAY prefer to build on top of an RDF parser that allows the original order of the statements to be reconstructed. That would allow the original order of the authors on a piece to be reconstructed, which might or might not convey additional meaning to the viewer of a styled version of the record. Similarly, XML software that can handle the almost-standardized `xml:base` attribute MAY be preferred.

4.8.4 Conventions for Property Values

To aid in the automatic processing of PRISM documents, PRISM utilizes some conventions in expressing values of RDF properties. The values are expressed in three ways. First, a resource or an entry in a controlled vocabulary MAY be referenced with the `rdf:resource` attribute. For example, a book can be identified by its ISBN number as follows:

```
<dc:identifier rdf:resource="urn:isbn:0-932592-00-7" />
```

Second, human readable text MUST be is represented as element content:

```
<dc:title>Juggling for the Complete Klutz</dc:title>
```

barring any circumstances where representing the text in element content would change the RDF as compared to representing it as an attribute value. That element content may contain XML markup, in which case the `rdf:parseType` attribute MUST be given and MUST have a value of `'Literal'`.

Third, controlled vocabulary entries may be specified in-line. For example:

```
<dc:subject>
  <pcv:Descriptor rdf:about="http://loc.gov/LC/QA-76">
    <pcv:vocabulary>Library of Congress Classification</pcv:vocabualry>
    <pcv:code>QA-76</pcv:code>
    <pcv:label>Mathematical software</pcv:label>
  </pcv:Descriptor>
</dc:subject>
```

XML DTDs cannot describe such a flexible content model, so no DTD is provided in this specification¹⁶.

¹⁶ A validation tool based on XML Schemas has been developed. It will be available online from the prismstandard.org website.

4.8.5 Convention 1: In-line controlled vocabulary term definitions preferred

PRISM descriptions make extensive use of values selected from controlled vocabularies. Conceptually, all that is needed is a reference to the vocabulary entry. But for practical considerations such as human readability, ease of use of full-text search tools, and performance, it is useful to be able to provide information about the controlled vocabulary entry, such as its human-readable label, directly in the description.

The PRISM specification recommends that when this additional information is provided, that it be provided in-line, instead of as an additional `rdf:Description` element. For example, a story whose subject is "Mining" as defined in the North American Industrial Classification System (NAICS), would have the following description:

```
<?xml version="1.0" encoding="UTF-8"?>
<rdf:RDF xmlns:prism="http://prismstandard.org/1.0#"
  xmlns:pcv="http://prismstandard.org/namespaces/pcv/1.0/"
  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="story.xml">
    <dc:subject>
      <pcv:Descriptor rdf:about="http://prismstandard.org/vocabs/NAICS/21">
        <pcv:vocab>North American Industrial Classification System</pcv:vocab>
        <pcv:code>21</pcv:code>
        <pcv:label>Mining</pcv:label>
      </pcv:Descriptor>
    </dc:subject>
  </rdf:Description>
</rdf:RDF>
```

as opposed to the form of the description below, where the controlled vocabulary term is described out-of-line instead of in-line.

```
<?xml version="1.0" encoding="UTF-8"?>
<rdf:RDF xmlns:prism="http://prismstandard.org/1.0#"
  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="story.xml">
    <dc:subject rdf:resource="http://prismstandard.org/vocabs/NAICS/21"/>
  </rdf:Description>

  <pcv:Descriptor rdf:about="http://prismstandard.org/vocabs/NAICS/21">
    <pcv:vocab>North American Industrial Classification System</pcv:vocab>
    <pcv:code>21</pcv:code>
    <pcv:label>Mining</pcv:label>
  </pcv:Descriptor>
</rdf:RDF>
```

The two approaches are identical in terms of the RDF graph that is generated, but the former is believed easier to deal with using standard tools such as full-text indexing software or simple editing scripts.

Note that we use the `rdf:about` attribute when providing the information on the controlled vocabulary term. This indicates that the real definition of the term is elsewhere, and we are merely providing some local descriptions of that term.

5 Element Definitions

The PRISM specification recommends existing elements (in the case of the Dublin Core) or defines new elements to use for descriptive metadata. The detailed, normative, definitions of those elements is provided in this section.

All the element definitions appear in a uniform format. Each element definition begins with two fields – the Name and the Identifier of the element. The Name is a human-readable string that can be translated into different languages. Also, note that PRISM does NOT require that users be presented with the same labels. The Identifier is a protocol element. It is an XML element type and MUST be given as shown, modulo the normal allowance for variations in the namespace prefix used.

5.1 XML Entities Used In Definitions

Some of the content models used in this section provide content models that use parameter entity references. Those parameter entities and their meaning are:

Table 13: Entities Used as Abbreviations in Element Definitions

Parameter Entity	Definition
%AuthorityReference;	An attribute, “rdf:resource”, whose value is a URI referring to a term in a controlled vocabulary.
%content.mix;	Typical mix of elements for representing content, such as #PCDATA, <p>, <bold>, <quote>, etc. The details of the parameter entity will depend on the context in which the PRISM namespace is being used. Note that PRISM very rarely specifies a pure #PCDATA content model, because of the need for BiDi and Rubi markup in internationalization situations.
%ResourceReference;	An attribute, “rdf:resource”, whose value is a URI reference to a resource. The set of AuthorityReferences is a subset of the set of ResourceReferences.
%TimeSpecification;	A string specifying a date and time according to the W3C profile of ISO 8601 (e.g., YYYY-MM-DDThh:mm:ssTZD) [W3C-NOTE-datetime].

5.2 Dublin Core Namespace

The normative definitions of the Dublin Core elements can be found in [DCMI]. The following table adds comments to indicate the use of each Dublin Core element in a PRISM document. The use of some DC elements is encouraged, others are discouraged, and others constrained.

None of the Dublin Core elements are required to appear in a PRISM description, and all of them are repeatable any number of times.

5.2.1 dc:contributor

Name	Contributor
Identifier	dc:contributor
Definition	An entity responsible for making contributions to the content of the resource.
Comment	Examples of a Contributor include a person, an organization, or a service. Typically, the name of a Contributor should be used to indicate the entity.
Attributes	%AuthorityReference if empty.
Model	(%content.mix;) or EMPTY if %AuthorityReference is given.
Occurs In	
Example	<pre><dc:contributor>John Smith</dc:contributor> <dc:contributor rdf:resource="http://wanderlust.com/jas"/></pre>

5.2.2 dc:coverage

Name	Coverage
Identifier	dc:coverage
Definition	The spatial and/or temporal extent of the content of the resource.
Comment	<p>Coverage will typically include spatial location (a place name or geographic coordinates), temporal period (a period label, date, or date range) or jurisdiction (such as a named administrative entity).</p> <p>Recommended best practice is to use prism:location for cases where a geographic area is a subject for the resource, and Authority references are possible.</p> <p>Coverage is preferred for temporal subjects of the resource.</p>
Attributes	%AuthorityReference if empty.
Model	(%content.mix;) or EMPTY if %AuthorityReference is given.
Occurs In	
Example	<pre><dc:coverage>19'th Century France</dc:coverage></pre>

5.2.3 dc:creator

Name	Creator
Identifier	dc:creator
Definition	An entity primarily responsible for making the content of the resource.
Comment	Examples of a Creator include a person, an organization, or a service. Typically, the name of a Creator should be used to indicate the entity. In principle, any number of creators may be associated with a resource.
	PRISM recommends that this element contain the name of one person or organization primarily responsible for the intellectual content of the resource. The element SHOULD be repeated when more than one entity is considered to have the main responsibility for the intellectual content of the resource. Synonyms or “aliases” for creator names should be handled with an Authority File. Use other PRISM elements to describe arbitrary contributory roles.
Attributes	%AuthorityReference if empty.
Model	(%content.mix;) or EMPTY
Occurs In	
Example	<pre><dc:creator>John Peterson</dc:creator> <dc:creator>Cogswell Cogs, Inc.</dc:creator> <dc:creator rdf:resource="http://cogswell.cogs/empID/123"/></pre>

5.2.4 dc:date

Name	Date
Identifier	dc:date
Definition	A date associated with an event in the life cycle of the resource.
Comment	Typically, Date will be associated with the creation or availability of the resource. Recommended best practice for encoding the date value is defined in a profile of ISO 8601 [W3C-DateTime] and follows the YYYY-MM-DD format.
	The Dublin Core definition of date is quite loose. PRISM recommends that this element not be used, unless the more descriptive dates in the PRISM namespace are not appropriate.
Attributes	None
Model	(%TimeSpecification)
Occurs In	
Example	

5.2.5 dc:description

Name	Description
Identifier	dc:description
Definition	An account of the content of the resource.
Comment	In principle, this element MAY contain any information (e.g., an abstract, table of contents, reference to a graphical representation of content or a free-text account of the content) that describes the resource.

For PRISM descriptions, the content of the `dc:description` element MUST be plain text, or text marked up with well-balanced XML content. In the latter case, the `rdf:parseType="Literal"` attribute MUST be specified.

PRISM recommends that `dc:description` be used for whole-resource metadata. PRISM provides more specific genre types for matters such as abstract or summary, and recommends that such content use the more specific PRISM elements instead of being placed into the `dc:description` element.

Attributes	None
Model	%content.mix;
Occurs In	
Example	<pre><dc:description rdf:parseType="Literal"> Describes the infamous criminal and gunfighter, Billy the Kid. </dc:description></pre>

5.2.6 dc:format

Name	Format
Identifier	dc:format
Definition	The physical or digital manifestation of the resource.
Comment	Typically, Format may include the media-type or dimensions of the resource. Format may be used to determine the software, hardware or other equipment needed to display or operate the resource. Examples of dimensions include size and duration.

For PRISM purposes, resources will be digital content, not physical objects. PRISM-compliant systems sending PRISM records MUST restrict values of the `dc:format` element to those in list of Internet Media Types [MIME]. Since the Dublin Core specification does not impose that restriction, PRISM-compliant systems receiving descriptions MAY wish to detect when format values are strings rather than media types in order to allow application-appropriate handling.

Attributes	None
Model	(#PCDATA)
Occurs In	
Example	<code><dc:format>application/pdf</dc:format></code>

5.2.7 dc:identifier

Name	Identifier
Identifier	dc:identifier
Definition	An unambiguous reference to the resource within a given context.
Comment	Recommended best practice is to identify the resource by means of a string or number conforming to a formal identification system. Example formal identification systems include the Uniform Resource Identifier (URI) (including the Uniform Resource Locator (URL)), the Digital Object Identifier (DOI) and the International Standard Book Number (ISBN).
	For PRISM usage, the value SHOULD be given in the <code>rdf:resource</code> attribute when the identifier is a (potentially relative) URI reference. If the identifier is not a URI reference, it MUST be given as element content.
	Consistent and thorough use of identifiers is essential for PRISM conformance. Note that multiple <code>dc:identifier</code> statements can be used for internal IDs like ISSN, vol, num, issue, edition, accession number, etc., to identify a particular published item.
Attributes	<code>rdf:resource</code> when element is EMPTY.
Model	(%content.mix;) or EMPTY
Occurs In	
Example	<code><dc:identifier rdf:resource="#chapter1"/></code>

5.2.8 dc:language

Name	Language
Identifier	dc:language
Definition	A language of the intellectual content of the resource.
Comment	Recommended best practice for the values of the Language element is defined by RFC 3066 [RFC3066]. It specifies the use of a two-letter (or three-letter) Language Code taken from the ISO 639 standard [ISO639] (or from ISO 639-2), optionally followed by a two-letter Country Code (taken from the ISO 3166 standard [ISO3166]). For example, 'en' for English, 'fr' for French, or 'en-GB' for English used in the United Kingdom.
Attributes	None
Model	(#PCDATA)
Occurs In	
Example	<code><dc:lang>en-US</dc:lang></code>

5.2.9 dc:publisher

Name	Publisher
Identifier	dc:publisher
Definition	An entity responsible for making the resource available.
Comment	The organization or individual that released the resource for publication.
	PRISM recommends that the name of the publisher should be supplied as content, a URI used in an <code>rdf:resource</code> attribute, or a controlled term from an authority list be used.
Attributes	<code>rdf:resource</code> if empty content.
Model	(%content.mix;) or EMPTY
Occurs In	
Example	<code><dc:publisher rdf:resource="http://wanderlust.com/" /></code>

5.2.10 dc:relation

Name	Relation
Identifier	dc:relation
Definition	A reference to a related resource.
Comment	Because the notion of “related resource” is vague, PRISM recommends that this element not be used. Preference should be given to the more specific PRISM relationship elements, or to use of the extension mechanisms available in RDF.
Attributes	rdf:resource
Model	EMPTY
Occurs In	
Example	<i>No example shown since element is not recommended.</i>

5.2.11 dc:rights

Name	Rights
Identifier	dc:rights
Definition	Information about rights held in and over the resource.
Comment	Typically, a Rights element will contain a rights management statement for the resource, or reference a service providing such information. Rights information often encompasses Intellectual Property Rights (IPR), Copyright, and various Property Rights. If the Rights element is absent, no assumptions can be made about the status of these and other rights with respect to the resource.
	For PRISM, the <code>dc:rights</code> element specifies the (perhaps implicit) agreement under which the sender allows the receiver to use the content. All rights elements (the PRL elements and the time-specific rights elements) must be contained directly or indirectly in a <code>dc:rights</code> element. Other rights information, such as a copyright statement, that will not vary from one receiver to another may be given as a direct child element of the <code>rdf:Description</code> element about the resource.
Attributes	rdf:resource if EMPTY
Model	EMPTY or ANY
Occurs In	
Example	<code><dc:rights><prism:releaseTime>2001-03-01</prism:releaseTime></dc:rights> <dc:rights rdf:resource=”#standardTerms”/></code>

5.2.12 dc:source

Name	Source
Identifier	dc:source
Definition	A Reference to a resource from which the present resource is derived.
Comment	The present resource may be derived from the Source resource in whole or in part. Recommended best practice is to reference the resource by means of a string or number conforming to a formal identification system.
	Use <code>prism:isBasedOn</code> when providing an unambiguous reference to the resource (i.e., a URI). Use <code>dc:source</code> when providing a textual description of the resource.
Attributes	None
Model	%content.mix;
Occurs In	
Example	<code><dc:source>From a story told to me by my grandmother.</dc:source></code>

5.2.13 dc:subject

Name	Subject
Identifier	dc:subject
Definition	The topic of the content of the resource.
Comment	<p>Typically, a Subject will be expressed as keywords, key phrases, or classification codes that describe a topic of the resource. Recommended best practice is to select a value from a controlled vocabulary. The value SHOULD be repeated when multiple codes are specified.</p> <p>If local operations on the name(s) or definition(s) of the vocabulary elements is needed, PRISM's recommended practice is to provide the value of the <code>dc:subject</code> element using the <code>pcv:Descriptor</code> element and its allowed elements of <code>pcv:vocab</code>, <code>pcv:code</code>, and <code>pcv:label</code>.</p> <p>Note that PRISM defines several elements for more specific types of subjects, such as when people, places, organizations, etc. are the subject of the resource. Those elements SHOULD be used in preference to the <code>dc:subject</code> element when they are appropriate.</p>
Attributes	<code>rdf:resource</code> if EMPTY
Model	(<code>%content.mix;</code>), or EMPTY if <code>rdf:resource</code> given, or <code>pcv:Descriptor</code> .
Occurs In	
Example	<pre><dc:subject rdf:resource= "http://prismstandard.org/vocabs/lcc/QA76" /></pre>

5.2.14 dc:title

Name	Title
Identifier	dc:title
Definition	A name given to the resource.
Comment	<p>Typically, a Title will be a name by which the resource is formally known.</p> <p>The PRISM specification allows titles to contain special markup characteristics. In such cases the <code>rdf:parseType="Literal"</code> MUST be given.</p>
Attributes	<code>rdf:parseType</code> if XML content
Model	<code>%content.mix;</code>
Occurs In	
Example	<pre><dc:title>The Cat in the Hat</dc:title></pre>

5.2.15 dc:type

Name	Type
Identifier	dc:type
Definition	The style of presentation of the resource's content, such as image vs. sidebar.
Comment	<p>The 'type' of a resource can be many different things. In PRISM descriptions, the <code>dc:type</code> element takes values that indicate the style of presentation of the content, such as "Map", "Table", or "Chart". This is in contrast to <code>prism:category</code>, which represents the genre, or stereotypical intellectual content type, of the resource. For example, the genre 'electionResults' can be presented in a map, a table, or a chart.</p> <p>Recommended practice for PRISM implementations is to use a value from Table 16: Controlled Vocabulary of Presentation Styles, expressed as a URI reference. Implementations MUST also be able to handle text values, but interoperation with text values cannot be guaranteed.</p> <p>To describe the physical or digital manifestation of the resource, use the <code>dc:format</code> element.</p>
Attributes	%AuthorityRef;
Model	EMPTY if <code>rdf:resource</code> attribute given, (#PCDATA) otherwise. Repeat element for resources with multiple types.
Occurs In	
Example	<code><dc:type rdf:resource="#homePage"/></code> (note that relative URI references can be used, assuming that an earlier <code>xml:base</code> has set the base URI appropriately.)

5.3 Basic PRISM Namespace

In addition to the Dublin Core elements, the PRISM specification defines additional namespaces. The ‘prism’ namespace contains elements suitable for a wide range of content publication, licensing, and reuse situations. Many of them are, in effect, extensions of the elements from the Dublin Core.

5.3.1 prism:category

Name	Category
Identifier	prism:category
Definition	The nature or genre of a resource’s intellectual content.
Comment	Recommended practice for PRISM implementations is to use values from Table 17: . Text values are allowed, so implementations MUST be capable of handling them, although this specification does not mandate how.
Attributes	See dc:type for an explanation of the relation between dc:type, dc:format, and prism:category.
Model	%AuthorityReference if empty. (#PCDATA) if no rdf:resource attribute, EMPTY otherwise. Repeat element for resources in multiple genre.
Occurs In	
Example	<pre><prism:category rdf:resource= "http://prismstandard.org/1.0/category.xml#electionResults"/></pre>

5.3.2 prism:contentLength

Name	Content Length
Identifier	prism:contentLength
Definition	Size, in 8-bit bytes, of the resource.
Comment	Abbreviations, such as kB, MB, .. MUST NOT be used.
Attributes	none
Model	(#PCDATA); May appear 0 or 1 times.
Occurs In	
Example	<pre><prism:contentLength>2938472</prism:contentLength></pre>

5.3.3 prism:copyright

Name	Copyright
Identifier	prism:copyright
Definition	Copyright statement for the resource.
Comment	Use the numeric character entity "©", rather than the “©” character entity, to put copyright symbols into the statement. Many XML parsers do not predefine the “©” entity, resulting in a parse error.
Attributes	rdf:parseType if element content contains XML markup.
Model	%content.mix;
Occurs In	
Example	<pre><prism:copyright> © Copyright 2001, Wicked Publications Inc. </prism:copyright></pre>

5.3.4 prism:creationTime

Name	Creation Time
Identifier	prism:creationTime
Definition	Date and time the identified resource was first created.
Comment	
Attributes	None
Model	(%TimeSpecification) ; May appear 0 or 1 times.
Occurs In	
Example	<pre><prism:creationTime> 2001-02-28T23:59:59 </prism:creationTime></pre>

5.3.5 prism:distributor

Name	Distributor
Identifier	prism:distributor
Definition	An identifier for the distributor of the resource.
Comment	Best practice is to use a URI for the distributor as a value for the rdf:resource attribute.
	The organization or individual that most recently made the resource available, typically as part of a value-added service such as aggregation, syndication, or distribution. If the Publisher is the most recent distributor, omit this field.
Attributes	%AuthorityReference; if content EMPTY
Model	%content.mix; or EMPTY
Occurs In	
Example	<pre><prism:distributor> Internet Syndication Service </prism:distributor> <prism:distributor rdf:resource= "http://prismstandard.org/vocabs/NYSE/NEWS"/></pre>

5.3.6 prism:event

Name	Event (as the subject of a resource)
Identifier	prism:event
Definition	An event (social gathering, phenomenon, or more generally something that happened at a specifiable place and time) referred to in order to indicate a subject of the resource.
Comment	If there is more than one event related to a resource, include a separate instance of prism:event for each event. The value may be a text string or an authority file reference.
Attributes	%AuthorityReference; if content EMPTY
Model	%content.mix; or EMPTY
Occurs In	
Example	<pre><prism:event>Superbowl XXXIV</prism:event></pre>

5.3.7 prism:expirationTime

Name	Expiration Time
Identifier	<code>prism:expirationTime</code>
Definition	Latest date and time that the resource may be used according to the rights agreement, or clause in the rights agreement.
Comment	
Attributes	None
Model	(%TimeSpecification) ; Optional, MUST NOT occur more than once per rights clause.
Occurs In	<code>dc:rights</code> element
Example	<pre><dc:rights rdf:parseType="Resource"> <prism:expirationTime>2001-04-09</prism:expirationTime> </dc:rights></pre>

5.3.8 prism:hasAlternative

Name	Has Alternative
Identifier	<code>prism:hasAlternative</code>
Definition	The described resource has an alternative version that can be substituted, namely the referenced resource.
Comment	
Attributes	<code>rdf:resource</code> contains identifier of related resource
Model	EMPTY
Occurs In	
Example	<pre><prism:hasAlternative rdf:resource= "http://freeimages.com/PoolHut.jpg"/></pre>

5.3.9 prism:hasCorrection

Name	Has Correction
Identifier	<code>prism:hasCorrection</code>
Definition	The described resource has a correction, namely the referenced resource.
Comment	Implementations that use a typing system similar to the RDF Schema system MAY wish to treat this element as a sub-property of the <code>prism:hasVersion</code> element.
Attributes	%ResourceReference;
Model	EMPTY
Occurs In	
Example	<pre><prism:hasCorrection rdf:resource= "http://wanderlust.com/2000/08/BelizeTravelCorrected.xml"/></pre>

5.3.10 prism:hasFormat

Name	Has Format
Identifier	<code>prism:hasFormat</code>
Definition	The described resource pre-existed the referenced resource, which is essentially the same intellectual content presented in another format.
Comment	
Attributes	%ResourceReference;
Model	EMPTY
Occurs In	
Example	<pre><prism:hasFormat rdf:resource="http://wap.wanderlust.com/2000/08/Belize.wml"/></pre>

5.3.11 prism:hasPart

Name	Has Part
Identifier	prism:hasPart
Definition	The described resource includes the referenced resource either physically or logically.
Comment	
Attributes	%ResourceReference;
Model	EMPTY
Occurs In	
Example	<pre><prism:hasPart rdf:resource= "http://travelmongo.com/2000/08/BelizePhoto.jpg" /></pre>

5.3.12 prism:hasTranslation

Name	Has Translation
Identifier	prism:hasTranslation
Definition	The described resource has been translated into another language, and the referenced resource is that translation.
Comment	
Attributes	%ResourceReference;
Model	EMPTY
Occurs In	
Example	<pre><prism:hasPart rdf:resource= "http://example.com/classics/Romeo%20e%20Giulietta" /></pre>

5.3.13 prism:hasVersion

Name	Has Version
Identifier	prism:hasVersion
Definition	The described resource has a version, edition, or adaptation, namely, the referenced resource. Changes in version imply substantive changes in intellectual content rather than differences in format.
Comment	For the special case of versions known as “corrections”, use the prism:hasCorrection element.
Attributes	%ResourceReference;
Model	EMPTY
Occurs In	
Example	<pre><prism:hasVersion rdf:resource= "http://travelmongo.com/2000/08/BelizeTravelUpdate.xml" /></pre>

5.3.14 prism:industry

Name	Industry (as the subject of a resource)
Identifier	prism:industry
Definition	An industry or industry sector, referred to in order to indicate a subject of the resource.
Comment	If there is more than one industry related to a resource, include a separate instance of prism:industry for each industry. The value may be a text string or an authority file reference.
Attributes	%AuthorityReference if content EMPTY
Model	%content.mix; or EMPTY
Occurs In	
Example	<pre><prism:industry rdf:resource= "http://prismstandard.org/vocabs/SIC/21395502" /></pre>

5.3.15 prism:isAlternativeFor

Name	Is Alternative For
Identifier	<code>prism:isAlternativeFor</code>
Definition	The described resource can be substituted for the referenced resource.
Comment	This is the inverse of the <code>prism:HasAlternative</code> relation.
Attributes	%ResourceReference;
Model	(EMPTY)
Occurs In	
Example	<pre><prism:isAlternativeFor rdf:resource= "http://freelancer.com/photos/BelizeBeach.jpg" /></pre>

5.3.16 prism:isBasedOn

Name	Is Based On
Identifier	<code>Prism:isBasedOn</code>
Definition	The described resource is a performance, production, derivation, translation, adaptation or interpretation of the referenced resource.
Comment	This is equivalent to <code>dc:source</code> , but is used when the related resource has an unambiguous identifier. When the referenced resource can only be described textually, use <code>dc:source</code> instead. The inverse relation is <code>prism:isBasisFor</code> .
Attributes	%ResourceReference
Model	EMPTY
Occurs In	
Example	<pre><prism:isBasedOn rdf:resource= "http://example.com/classics/Romeo%20and%20Juliet" /></pre>

5.3.17 prism:isBasisFor

Name	Is Basis For
Identifier	<code>Prism:isBasisFor</code>
Definition	The described resource has a performance, production, derivation, translation, adaptation or interpretation, namely the referenced resource.
Comment	The inverse relation is <code>prism:isBasedOn</code> .
Attributes	%ResourceReference
Model	EMPTY
Occurs In	
Example	<pre><prism:isBasisFor rdf:resource= "http://example.com/musicals/West%20Side%20Story" /></pre>

5.3.18 prism:isCorrectionOf

Name	Is Correction Of
Identifier	<code>prism:isCorrectionOf</code>
Definition	The described resource is a corrected version of the referenced resource.
Comment	This element is a sub-property of the <code>prism:isVersion</code> element, and is the inverse of the <code>prism:hasCorrection</code> element.
Attributes	%ResourceReference;
Model	EMPTY
Occurs In	
Example	<pre><prism:isCorrectionOf rdf:resource= "http://wanderlust.com/2000/08/BelizeTravel.xml" /></pre>

5.3.19 prism:isFormatOf

Name	Is Format Of
Identifier	<code>prism:isFormatOf</code>
Definition	The described resource is the same intellectual content of the referenced resource, but presented in another format. The referenced resource is regarded as closer to the original work than the described resource.
Comment	This is the inverse of the <code>prism:hasFormat</code> relation.
Attributes	%ResourceReference;
Model	EMPTY
Occurs In	
Example	<pre><rdf:Description rdf:about="Belize.pdf"> <prism:isFormatOf rdf:resource= "http://wanderlust.com/2000/08/Belize.qxd" /> </rdf:Description></pre>

5.3.20 prism:isPartOf

Name	Is Part Of
Identifier	<code>prism:isPartOf</code>
Definition	The described resource is a physical or logical part of the referenced resource.
Comment	This is the inverse of the <code>prism:hasPart</code> relation.
Attributes	%ResourceReference;
Model	EMPTY
Occurs In	
Example	<pre><prism:isPartOf rdf:resource= "http://TravelMongo.com/2000/08/BelizeArticle.xml" /></pre>

5.3.21 prism:isReferencedBy

Name	Is Referenced By
Identifier	<code>prism:isReferencedBy</code>
Definition	The described resource is referenced, cited, or otherwise pointed to by the referenced resource. [DCMI- R]
Comment	This is the inverse of the <code>prism:references</code> relation.
Attributes	%ResourceReference;
Model	EMPTY
Occurs In	
Example	<pre><prism:references rdf:resource= "http://example.com/documents/dl124352345.xml" /></pre>

5.3.22 prism:isTranslationOf

Name	Is Translation Of
Identifier	<code>prism:isTranslationOf</code>
Definition	The described resource is a human-language translation of the referenced resource.
Comment	This is a subPropertyType of <code>prism:isBasedOn</code> . The inverse relation is <code>prism:hasTranslation</code> .
Attributes	%ResourceReference
Model	EMPTY
Occurs In	
Example	<pre><prism:isTranslationOf rdf:resource= "http://example.com/classics/Romeo%20and%20Juliet" /></pre>

5.3.23 prism:isRequiredBy

Name	Is Required By
Identifier	<code>prism:isRequiredBy</code>
Definition	The described resource is required by the referenced resource, either physically or logically.
Comment	This is the inverse of the <code>prism:requires</code> relation.
Attributes	%ResourceReference;
Model	EMPTY
Occurs In	
Example	<code><prism:isRequiredBy rdf:resource= "http://wanderlust.com/2000/08/BelizePhoto.jpg" /></code>

5.3.24 prism:isVersionOf

Name	Is Version Of
Identifier	<code>prism:isVersionOf</code>
Definition	The described resource is a version, edition, or adaptation of the referenced resource. Changes in version imply substantive changes in content rather than differences in format.
Comment	This is the inverse of <code>prism:hasVersion</code> . For corrections, use the subproperty <code>prism:isCorrectionOf</code> . For alternative versions that do not have substantive changes in intellectual content, use <code>prism:isAlternativeFor</code> .
Attributes	%ResourceReference
Model	EMPTY
Occurs In	
Example	<code><prism:isVersionOf rdf:resource= "http://travelmongo.com/2000/08/BelizeTravel.xml" /></code>

5.3.25 prism:location

Name	Geographic Location (as the subject of a resource)
Identifier	<code>prism:location</code>
Definition	A geospatial location, referred to in order to indicate a subject of the resource.
Comment	If there is more than one location related to a resource, include a separate instance of <code>prism:location</code> for each. The value may be a string or an authority file reference. This element SHOULD be used in preference to the <code>dc:coverage</code> element for geospatial locations.
Attributes	%AuthorityReference if content EMPTY
Model	%content.mix; or EMPTY
Occurs In	
Example	<code><prism:location rdf:resource= "http://prismstandard.org/vocabs/ISO-3166/GR" /></code>

5.3.26 prism:modificationTime

Name	Modification Time
Identifier	prism:modificationTime
Definition	Date and time the resource was last modified.
Comment	
Attributes	None
Model	%TimeSpecification; may occur 0 or 1 times.
Occurs In	
Example	<pre><prism:modificationTime> 2000-02-28T23:55:38 </prism:modificationTime></pre>

5.3.27 prism:object

Name	Object (as the subject of a resource)
Identifier	prism:object
Definition	A physical or virtual object, referred to in order to indicate a subject of the resource.
Comment	<p>This element is particularly intended for use when categorizing content by products.</p> <p>For example, <prism:object>Dodge Viper</prism:object> would be used to indicate that a subject of the story was a certain high-performance automobile.</p> <p>If there is more than one object related to a resource, include a separate instance of prism:object for each. The value may be a string or an authority file reference.</p>
Attributes	%AuthorityReference if content EMPTY
Model	%content.mix; or EMPTY
Occurs In	
Example	<pre><prism:object>Eames chair</prism:object> <prism:object rdf:resource="urn:upc:3847-4837-4"/></pre>

5.3.28 prism:organization

Name	Organization (when used as the subject of a resource)
Identifier	prism:organization
Definition	An organization, referred to in order to indicate a subject of the resource.
Comment	<p>If there is more than one organization related to a resource, include a separate instance of prism:organization for each.</p>
Attributes	%AuthorityReference if content EMPTY
Model	%content.mix; or EMPTY
Occurs In	
Example	<pre><prism:organization>Dept. of Energy</prism:organization> <prism:organization rdf:resource= "http://prismstandard.org/vocabs/NYSE/IBM"/></pre>

5.3.29 prism:person

Name	Person (when used as the subject of a resource)
Identifier	<code>prism:person</code>
Definition	A person, referred to in order to indicate a subject of the resource.
Comment	If there is more than one person related to a resource, include a separate instance of <code>prism:person</code> for each.
Attributes	%AuthorityReference if content EMPTY
Model	%content.mix; or EMPTY
Occurs In	
Example	<code><prism:person>Abraham Lincoln</prism:person></code> <code><prism:person rdf:resource="http://wanderlust.com/empID?2489" /></code>

5.3.30 prism:publicationTime

Name	Publication Time
Identifier	<code>prism:publicationTime</code>
Definition	Date and time when the resource is released to the public.
Comment	
Attributes	None
Model	(%TimeSpecification); May occur zero or one times.
Occurs In	
Example	<code><prism:publicationTime>2001-03-01</code> <code></prism:publicationTime></code> states that the resource was published on March 1, 2001.

5.3.31 prism:receptionTime

Name	Reception Time
Identifier	<code>prism:receptionTime</code>
Definition	Date and time the resource was received on current system.
Comment	
Attributes	None
Model	(%TimeSpecification); ; May occur zero or one times.
Occurs In	
Example	<code><prism:receptionTime>2001-03-01T06:30:00</prism:receptionTime></code> states that the described resource was received at 6:30 AM on the morning of March 1, 2001.

5.3.32 prism:references

Name	References
Identifier	<code>prism:references</code>
Definition	The described resource references, cites, or otherwise points to the referenced resource.
Comment	
Attributes	%ResourceReference
Model	EMPTY
Occurs In	
Example	<code><prism:references rdf:resource=</code> <code>"http://travelbelize.com/HotelInformation.html" /></code>

5.3.33 prism:releaseTime

Name	Release Time
Identifier	prism:releaseTime
Definition	Earliest date and time the resource may be used according to the rights agreement, or clause in the rights agreement.
Comment	The name of this element comes from its most common expected use – the time that the embargo on the use of the element ends at it may be released to the outside world.
Attributes	None
Model	(%TimeSpecification) ; Optional, MUST NOT occur more than once per rights clause.
Occurs In	dc:rights element
Example	<code><prism:releaseTime>2001-03-09:00:00:01</prism:releaseTime></code> states that the described resource cannot be used (published) until 1 second into March 9, 2001.

5.3.34 prism:requires

Name	Requires
Identifier	prism:requires
Definition	The described resource requires the referenced resource to support its function, delivery, or coherence of content.
Comment	This is the inverse of the prism:requiredBy relation.
Attributes	%ResourceReference
Model	EMPTY
Occurs In	
Example	<code><prism:requires rdf:resource="http://wanderlust.com/2000/08/BelizePhotoCredit.txt" /></code>

5.3.35 prism:rightsAgent

Name	Rights Agent
Identifier	prism:rightsAgent
Definition	Name, and possibly contact information, for the person or organization that should be contacted to license the rights to use a resource.
Comment	This element should contain human-readable information. PRISM recommends that this be a simple text element. However, the content of this element may be elements from other namespaces, such as one that gives contact information, should such a namespace be acceptable to all the parties in the PRISM communication.
Attributes	
Model	(%content.mix;) or ANY
Occurs In	For the common case of one company to contact for licensing information, the element SHOULD appear as an immediate child of the <code>rdf:Description</code> element for the resource. In that case it SHALL appear 0 or 1 times. In cases where the rights agent to contact differs from one country to another, or for other reasons, this element MAY be used in rights clauses as an extension to the Prism Rights Language. In that situation, it MUST evaluate to the <code>#notApplicable</code> URI.
Example	<code><prism:rightsAgent>Phantastic Photos, Philadelphia</prism:rightsAgent></code>

5.4 PRISM Rights Language

The PRISM WG put only the most commonly-needed rights elements into the PRISM namespace. For more involved treatment of rights and permissions in PRISM descriptions, elements from another namespace must be used. Because of the considerable activity around specifying rights and permissions, the PRISM working group could not recommend an existing standard to follow, as they were able to do with XML, RDF, and the Dublin Core. Therefore the 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). This section specifies that language. Note that implementations of PRISM MAY also implement PRL, but it is not mandatory. The PRISM Working Group expects PRL to be supplanted in time, once the activity around many different rights languages has settled down.

5.4.1 Processing Model

Collections of PRL statements are known as *PRL expressions*. The purpose of a PRL expression is to determine if a person or organization may or may not make use of a resource in a particular way. PRL expressions evaluate to a Boolean value that indicates if a particular use is allowed (if the expression evaluates to true) or not (if the expression evaluates to false).

PRL evaluation is described in RDF domain, not in the XML syntax domain. Note that PRL expressions do not describe the resource directly. They describe the real or virtual agreement under which the sender and receiver are operating. PRL expressions consist of one or more *clauses*. A clause, in the RDF domain, is a resource that represents a real or virtual clause in the agreement between the sender and receiver. It is the RDF subject of statements that convey the intent of the clause. In PRISM descriptions, PRL expressions MUST appear only within the scope of a `dc:rights` element. The `dc:rights` statement contains the clause, or an `rdf:Bag` element if there are multiple clauses.

Each clause has a possibly empty set of *usage* statements and a possibly empty set of *condition* statements. If no usage is specified, the default usage is `#use`. (`#use` will be defined later in this section). If no conditions are specified, the default condition evaluates to 'true'.

Conditions evaluate to Boolean true or false. Conditions are expressed in XML using elements from the PRL namespace, such as `prl:geographic` and `prl:industry`. Two elements from the PRISM namespace, `prism:releaseTime` and `prism:expirationTime`, also express PRL conditions. To evaluate a condition, a comparison is made between the value(s) supplied in the XML element and the current state of the system or the intended use of content. The exact nature of the comparison depends on the condition being tested. True values mean that the condition applies. For example, the `prism:releaseTime` condition evaluates to 'true' if the current system date and time is greater than or equal to the date and time specified in that element's content. The `prl:industry` condition evaluates to 'true' if the content is intended to be used in the specified industry. This specification does not define how the current state of the system and the intended use(s) of the content are made available for evaluating the conditions.

Usages do not evaluate to Booleans. Instead, they evaluate to a set of URI references (which is typically of length 1). The URI references govern what the receiving system can do with the described resource. PRL defines only the four URI references shown in Section 6.1, Rights and Usage Vocabularies. Others can be defined, but this is expected to be an exceedingly rare form of extension.

To evaluate a clause, the logical AND of the conditions in the clause is computed. If that is false, the clause evaluates to the PRL usage `#notApplicable`. If the logical AND is true, the set of usages in the clause is evaluated and returned as the value of the clause.

To evaluate a PRL expression, all the clauses are evaluated and their results are merged according to the following rules, which MUST be applied in the following order:

- 1) U, the UNION of the sets of URI references is computed. If multiple PRL expressions exist because the described resource had multiple `dc:rights` elements, those usages are also included in the computation of U.
- 2) If `#none` is a member of U, the expression evaluates to false.
- 3) Any special rules needed by extension elements are applied.
- 4) If `#use` is a member of U, the expression evaluates to true¹⁷.

If the PRL expression evaluates to `true`, the resource may be used. If it evaluates to `false`, it may not be used. Typically, human intervention at runtime will be needed to convert the URI references, such as `#permissionsUnkown`, to a Boolean value.

Note that because PRL defines both `#none` and `#use`, the NOT operator is not needed.

PRL can be extended by defining new conditions and usages in other namespaces. Conditions MUST be defined to return a Boolean where `true` means the condition applies to the current state of the system or intended use of the content. Also, the conditions MUST be side-effect-free. Usages MUST return a URI reference. Another extension mechanism exists in PRL. The content model of the `prl:usage` element allows text content. When text content is given, implementations MUST convert it to a URI reference. This specification does not specify how that is to happen, however, a common means of doing so is expected to be showing the text to a user and asking them if the result should be `#use` or `#none`.

5.4.2 prl:geography

Name	Geography (as condition on use of a resource)
Identifier	<code>prl:geography</code>
Definition	Name of, or authority file reference to, a geographic region of interest.
Comment	Recommended practice is to use the ISO 3166-1 and 3166-2 country and region codes.
Attributes	%AuthorityRef; or EMPTY
Model	(%content.mix;) or EMPTY
Occurs In	PRL clauses, which are contained in or referred to by a <code>dc:rights</code> element.
Example	<pre><prl:geography>Oklahoma</prl:geography> <prl:geography rdf:resource= "http://prismstandard.org/vocabs/ISO-3166/GB"/></pre>

5.4.3 prl:industry

Name	Industry (as condition on use of a resource)
Identifier	<code>prl:industry</code>
Definition	Name of, or authority file reference to, an industry or industrial sector of interest.
Comment	Recommended practice is to specify the industry sector using the NAICS industrial classification system.
Attributes	%AuthorityRef; or EMPTY
Model	%content.mix;
Occurs In	PRL clauses, which are contained in or referred to by a <code>dc:rights</code> element.
Example	<pre></prism:industry>Cellular radiotelephone service </prism:industry></pre>

¹⁷ Recall that the default usage is `#use`, so it should always be a member of U, unless extension rules have modified the members of U.

5.4.4 prl:usage

Name	Resource Usage
Identifier	<code>prism:usage</code>
Definition	Authority reference or human-readable description of a use that is allowed or restricted.
Comment	
Attributes	
Model	(%content.mix;)
Occurs In	
Example	<code><prl:usage>May not use on keychains or coffee mugs.</prl:usage></code>

5.5 PRISM Inline Markup Namespace

Metadata is typically considered as out-of-line information. Fields such as Author, Title, and Subject are stereotypical examples of information that is descriptive of the whole of a resource and is frequently held separately from it. However, the 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. Developers of XML specifications for the publishing industry can use the following DTD fragment to incorporate PRISM's in-line markup elements into their DTDs. The fragment assumes that the basic textual content markup is described in another parameter entity known as %content.mix;

```
<!-- href attribute contains an authority file reference -->
<!ENTITY % inlineAttrs " href CDATA #IMPLIED">

<!ELEMENT pim:location      (%content.mix; )>
<!ELEMENT pim:objectTitle   (%content.mix; )>
<!ELEMENT pim:organization  (%content.mix; )>
<!ELEMENT pim:person        (%content.mix; )>
<!ELEMENT pim:quote         (%content.mix; )>

<!ATTLIST pim:person        %inlineAttrs; >
<!ATTLIST pim:location      %inlineAttrs; >
<!ATTLIST pim:objectTitle   %inlineAttrs; >
<!ATTLIST pim:organization  %inlineAttrs; >
<!ATTLIST pim:quote         speakerRef CDATA #IMPLIED
                             placeRef  CDATA #IMPLIED
                             occasion  CDATA #IMPLIED
                             date      CDATA #IMPLIED >
```

5.5.1 pim:location

Name	Location
Identifier	pim:location
Definition	The location element tags a geographical location in the text.
Comment	Even at the simplest level, the location element helps to distinguish, for example, the Scottish city “Paisley” from the fabric design, or the country “China” from the tableware.
Attributes	href (for an AuthorityReference)
Model	(%content.mix;)
Occurs In	
Example	<p><p>He spoke on the history of the<pim:location>Great Lakes basin</pim:location> at the Royal Ontario Museum in <pim:location>Toronto</pim:location>.</p></p> <p><p>China patterns were selected before their honeymoon in <pim:location href=“http://prismstandard.org/vocabs/ISO-3166/CN”>China</pim:location>.</p></p>

5.5.2 pim:objectTitle

Name	Object title
Identifier	pim:objectTitle
Definition	The <code>pim:objectTitle</code> element tags the title of an object (such as a book, song, movie, etc.) in the text.
Comment	
Attributes	<code>href</code> (for an <code>AuthorityReference</code>)
Model	(%content.mix;)
Occurs In	
Example	<code><p>Some analysts compared the recent events to the film <pim:objectTitle>Wag the Dog</pim:objectTitle>.</p></code>

5.5.3 pim:organization

Name	Organization
Identifier	pim:organization
Definition	The <code>organization</code> element tags the name of any organization, such as a government, department, ministry, corporation, charity, private company, or club.
Comment	
Attributes	<code>href</code> (for an <code>AuthorityReference</code>)
Model	(%content.mix;)
Occurs In	
Example	<code><p><pim:organization href="http://prismstandard.org/vocabs/NYSE:NT">Nortel Networks</pim:organization> saw its stock fall in the face of the Brazilian devaluation.</p></code>

5.5.4 pim:person

Name	Person
Identifier	pim:person
Definition	The <code>person</code> element tags the name of a human individual (real or imaginary) in the text.
Comment	
Attributes	<code>href</code> (for an <code>AuthorityReference</code>)
Model	(%content.mix;)
Occurs In	
Example	<p><code><p>Prime Minister <pim:person>Tony Blair</pim:person> will meet with the other <pim:organization>EU</pim:organization> leaders to discuss agricultural policy.</p></code></p> <p><code><p>Catch-22 is <pim:person href="http://lc.gov/catdir/LC-NAF?Heller,+Joseph">Joseph Heller</pim:person>'s best-known work.</p></code></p>

5.5.5 pim:quote

Name	Quote
Identifier	pim:quote
Definition	Marks the words attributed to a specific person in the text.
Comment	Note that quotes may contain other quotes.
Attributes	speakerRef – authority file reference to speaker placeRef – authority file reference to place date – ISO date occasion – Textual description of the occasion
Model	(%content.mix;)
Occurs In	
Example	<pre><pim:quote speakerRef="USPres#JFK" placeRef="city/Berlin" occasion="Address to West Berlin" xml:lang="de">Ich bin ein Berliner </pim:quote> (assuming an earlier xml:base has set the base attribute to "http://prismstandard.org/vocabs/").</pre>

5.6 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.

5.6.1 pcv:broaderTerm

Name	Broader Term
Identifier	pcv:broaderTerm
Definition	Links to a broader (more general) taxon in the vocabulary. For example, from a taxon for 'dog' to one for 'mammal'.
Comment	Implementers should note that more than one pcv:broaderTerm link IS ALLOWED. This means that polyhierarchic structures are possible. However, cycles of pcv:broaderTerms are forbidden.
Attributes	rdf:resource
Model	EMPTY
Occurs In	pcv:Descriptor
Example	<pre><pcv:broaderTerm rdf:resource="#mammal"/></pre>

5.6.2 pcv:code

Name	Code
Identifier	pcv:code
Definition	Provides a unique machine-readable identifier for the term within the vocabulary.
Comment	This is usually an alphanumeric code, or a purely numeric one. However, markup is still allowed because of BiDi and Rubi considerations.
Attributes	
Model	(%content.mix)
Occurs In	pcv:Descriptor
Example	<pre><pcv:code>3245</pcv:code></pre>

5.6.3 pcv:definition

Name	Definition
Identifier	pcv:definition
Definition	Provides a human-readable definition for the item in the vocabulary.
Comment	Multiple definitions for the same term can be given, but PRISM recommended practice is only to do so when it has different values of the <code>xml:lang</code> attribute. Definitions are a place where embedded markup is very likely - paragraph breaks being especially common. For such embedded markup, recommended practice is to use elements from the XHTML namespace. The <code>rdf:parseType</code> attribute MUST be given the value of 'Literal' when embedded markup is used.
Attributes	xml:lang, rdf:parseType
Model	(%content.mix;)
Occurs In	pcv:Descriptor
Example	<pre><pcv:definition rdf:parseType="Literal"> Mammal describes the class of animals which: breathe air give birth to live young have hair </pcv:definition></pre>

5.6.4 pcv:Descriptor

Name	Descriptor
Identifier	pcv:Descriptor
Definition	Represents an entry, formally called a <i>taxon</i> , in a controlled vocabulary. pcv:Descriptor is the container for all the PCV elements used to define or describe such an entry.
Comment	<p>There are two main uses of pcv:Descriptor, corresponding to the two different attributes. When the <code>rdf:ID</code> attribute is used, the pcv:Descriptor is providing the <i>definition</i> of the taxon. The URI reference used in the <code>rdf:ID</code> attribute should be used by any other elements wishing to refer to the taxon.</p> <p>When the <code>rdf:about</code> attribute is used, pcv:Descriptor is a <i>description</i> of a taxon that is <i>defined</i> elsewhere. That external definition does NOT have to be made using the PCV elements.</p>
Attributes	rdf:ID or rdf:about
Model	ANY – but elements from the PCV namespace MUST be handled.
Occurs In	
Example	<pre><pcv:Descriptor ID="mammal"></pre>

5.6.5 pcv:label

Name	Label
Identifier	pcv:label
Definition	Provides a human-readable label for the term in the vocabulary.
Comment	Multiple labels can be provided, but typically this will be done when they bear different <code>xml:lang</code> attributes. Most vocabularies will have only one 'preferred' term for a concept. For example, "Mad Cow Disease" is more properly referred to as "Bovine Spongiform Encephalopathy". The <code><pcv:label></code> element SHALL be used for any preferred labels for a concept, whether there are multiple terms in a single language or not. For all alternate labels, use the <code><pcv:synonym></code> element.
Attributes	
Model	%content.mix;
Occurs In	
Example	<code><pcv:label>Bovine Spongiform Encephalopathy </pcv:label></code>

5.6.6 pcv:narrowerTerm

Name	Narrower Term
Identifier	pcv:narrowerTerm
Definition	Links to a narrower (more specific) concept in the vocabulary. For example, from 'dog' to 'Dalmatian'.
Comment	Multiple <code>pcv:narrowerTerm</code> links are allowed. <code>pcv:narrowerTerm</code> and <code>pcv:broaderTerm</code> are the inverse of each other. Cycles of <code>pcv:narrowerTerms</code> are forbidden.
Attributes	<code>rdf:resource</code>
Model	EMPTY
Occurs In	
Example	<code><pcv:narrowerTerm rdf:resource="#Dalmatian"/></code>

5.6.7 pcv:relatedTerm

Name	Related Term
Identifier	pcv:relatedTerm
Definition	Links to a 'related term' in the vocabulary, where the nature of the relation is not specified.
Comment	Where possible, PRISM recommends this element not be used. Elements that specify the relation more precisely are preferred. However, the difficulty in precisely identifying the exact nature of the relationship between obviously related words, such as farm and farmer), are difficult to overestimate. Therefore, <code>pcv:relatedTerm</code> is expected to be used frequently.
Attributes	<code>rdf:resource</code>
Model	EMPTY
Occurs In	
Example	<code><pcv:relatedTerm>Wolves</pcv:relatedTerm></code> <code><pcv:relatedTerm rdf:resource="http://example.com/cats.html"/></code>

5.6.8 pcv:synonym

Name	Synonym
Identifier	pcv:synonym
Definition	Alternate labels (synonyms) for the same vocabulary term. While semantically equivalent, the synonyms are not the preferred terms for the concept. See pcv:label for more on preferred vs. alternate terms. The synonyms are used to increase the likelihood of matching to the proper controlled vocabulary term.
Comment	
Attributes	
Model	%content.mix;
Occurs In	
Example	<pcv:synonym>Mad Cow Disease</pcv:synonym> <pcv:synonym>BSE</pcv:synonym>

5.6.9 pcv:vocabulary

Name	Vocabulary
Identifier	pcv:vocabulary
Definition	Provides a human-readable string identifying the vocabulary from which the term comes.
Comment	The pcv:vocabulary element is not expected to be used when <i>defining</i> the taxons in a vocabulary. It is expected to be used when providing small, in-line, <i>descriptions</i> of those taxons so that a reader may be able to track down a complete copy if they do not already own one.
Attributes	
Model	%content.mix;
Occurs In	
Example	<pcv:vocabulary>NAICS – North American Industrial Classification System, Canadian Edition, 1997</pcv:vocabulary>

6 Controlled Vocabularies

The specification to this point has focused on the elements and attributes that may be used in a PRISM metadata document. Elements, in effect, define the syntax of the document. To convey the meaning of a document, the values that a given element may take must also be defined. This section lists the controlled vocabularies that comprise the set of legal values for certain PRISM elements. Other elements use controlled vocabularies created and maintained by third parties (such as the ISO 3166 codes for country names). Still other elements will require some domain-specific controlled vocabulary (e.g., the North American Industrial Classification System).

Media types, such as text/html or image/jpeg, provide enough information for software to render data. But activities like discovery and re-purposing demand more specific information about the role of a resource. The PRISM Specification defines two controlled vocabularies for specifying different aspects of the nature of a resource: the Resource Type and the Resource Category. It also defines a one-element vocabulary for very basic rights operations. PRL also defines a small controlled vocabulary of usages for content.

6.1 Rights and Usage Vocabularies

Table 14: Predefined Resource Usages in PRISM Rights Language

Term	Definition
#none	No use can be made of the resource under the specified conditions.
#use	The resource can be used under the specified conditions. The limits on the resource's use are not further specified in the PRISM description and the relevant licensing agreement must be consulted.
#notApplicable	The conditions on use are not applicable to the current state of the system and the intended use(s) of the resource.
#permissionsUnknown	It is not known whether the resource can be used or not. Proceed at own risk.

Table 15: Predefined Resource Usages in PRISM

Term	Definition
#notReusable	The sender does not grant the receiver the rights to reuse the content.

6.2 Resource Type Vocabulary (presentation style)

The Resource Type defines the way that a resource *presents* information. The Resource Type captures different information than the format of a resource, as specified using MIME types. For example, a JPEG could be a photo, line drawing, or chart. The rendering software does not care, but potential users of the content do. The Resource type is also not specific to its intellectual content (e.g. election results vs. death rates can both be rendered as JPEG charts, but not as photographs). The Resource Type values form a controlled vocabulary for the `dc:type` element.

The URI for the PRISM resource type vocabulary is:

<http://prismstandard.org/vocabularies/1.0/resourcetype.xml>.

The PRISM resource type vocabulary is largely drawn from the print medium. Presentations that are idiomatic to film, audio, animation, and other mediums are only thinly represented. Organizations interested in describing items in such media may wish to consult the Art and Architecture Thesaurus

[AAT].

Table 16: Controlled Vocabulary of Presentation Styles

Term	Description
article	Literary compositions prepared for publication as an independent portion of a magazine, newspaper, encyclopedia, or other work. [AAT]
birdsEye	Visual depiction from an extremely high viewpoint.
book	Sheets of paper, parchment, or similar material, that are blank, written on, or printed, and are strung or bound together; especially, when printed, a bound volume, or a volume of some size. [AAT]
body	The principal component of the resource. [NewsML]
caption	Text identifying or explaining, and printed in close proximity to, illustrations or other images. [AAT]
catalog	Enumerations of items, usually arranged systematically, with descriptive details; may be in book or pamphlet form, on cards, or online. [AAT]
clip	A short segment of a work, typically in audio and/or visual presentation.
close-up	A visual presentation emphasizing the proximity of the point of view to the observed object. [after AAT]
credit	An acknowledgement, appearing in the style of a caption.
correction	A new version of an item, replacing what was wrong in the previous version.
electronicBook ¹⁸	A digital object typically thought of as an electronic analog to a physical hardcover or softcover book.
graph	Representations of any sort of data by means of dots, lines, or bars; usually to illustrate relationships. [AAT]
homePage	A web page intended as an entry point into a set of web pages.
illustration	Representations or diagrams that clarify, usually accompanying a text, sometimes part of an advertisement. [AAT]
index	A list, usually in alphabetical order, of persons and/or subjects referred to in a document, with location of references thereto.
interactiveContent	Content, such as crossword puzzles, financial calculators and applets, that invites a person to do something other than read or view the material.
journal	Periodicals containing scholarly articles or otherwise disseminating information on developments in scholarly fields. [AAT]
list	A series of names, words, or other items written, printed, or imagined one after the other. [Dictionary.com]
magazine	Periodicals containing articles, essays, poems, or other writings by different authors, usually on a variety of topics and intended for a general reading public or treating a particular area of interest for a popular audience. [AAT]
manual	Work containing concise information, often rules or instructions needed to perform tasks or processes. [AAT]
map	Graphic or photogrammetric representations of the Earth's surface or a part of it, including physical features and political boundaries, where each point corresponds to a geographical or celestial position according to a definite scale or projection. The term may also refer to similar depictions of other planets, suns, other heavenly bodies, or areas of the heavens. Maps are typically depicted on a flat medium, such as on paper, a wall, or a computer screen. [AAT]
news	A collection of news stories.
newspaper	Collections of material distributed daily, weekly, or at some other regular and usually short intervals and which contain news, editorials and opinions, features,

¹⁸ The PRISM Specification does not say anything about the logical structure of books, e.g. chapters, sections or the like.

	advertising, and other matter considered of general interest. [AAT]
photo	A picture of a person or scene in the form of a print or transparent slide; recorded by a camera on light-sensitive material. [WORDNET]
sidebar	Component associated with an article, that typically presents additional, contrasting, or late-breaking news. [AAT]
table	Condensed, orderly arrangements of data, especially those in which the data are arranged in columns and rows. [AAT]
webPage	An HTML document.
wormsEye	Visual depiction from an extremely low viewpoint.

6.3 Resource Category Vocabulary (intellectual genre)

The Resource Category describes the genre, or the stereotypical form of the *intellectual* content of the resource. Sample genre include obituaries, biographies, and movie reviews. The Resource Category values form a controlled vocabulary for the `prism:category` element, defined by the PRISM specification.

The URI for the PRISM Resource Category vocabulary is:

<http://prismstandard.org/vocabularies/1.0/category.xml>

Some genre, such as maps or indices, strongly associate the nature of the intellectual content and the style of presentation. Those are only listed in Table 16: Controlled Vocabulary of Presentation Styles

Table 17: Categories (intellectual genre)

Term	Description
abstract	A section featuring the most important points of a work. [NewsML]
acknowledgement	Written recognition of acts or achievements. [AAT]
advertisement	Piece of material whose presence is paid for. [NewsML]
authorBio	Brief text about the author of a work.
autobiography	Biography of an individual written by himself or herself. [after AAT]
bibliography	A section describing lists of books or other textual materials arranged in some logical order giving brief information about the works, such as author, date, publisher, and place of publication; may be works by a particular author, or on a particular topic. [AAT]
biography	Written accounts of the lives of individuals. [AAT]
brief	Material shorter than a typical article, frequently part of a collection under a single headline.
cartoon	Pictorial images using wit to comment on such things as contemporary events, social habits, or political trends, usually executed in a broad or abbreviated manner. [AAT]
classifiedAd	An advertisement, usually brief, appearing in a publication under headings with others of the same category.
column	Editorial or syndicated column.
dateline	Date and location of the content's creation.
electionResults	The results of an election.
eventsCalendar	Describes events that are happening over a specified period of time.
feature	A prominent or special article, story, or department in a news paper or periodical. [Dictionary.com]
financialStatement	Reports summarizing the financial condition of an organization on any date or for any period. [AAT]
interview	Statements, transcripts, or recordings of conversations in which one person obtains information from another such as for research purposes, publication, or broadcast. [AAT]
legalDocument	Documents having legal relevance in general. [AAT]
letterToEditor	A letter sent to the editors of a publication expressing an opinion.
logo	Graphic images that are designed for ready recognition to identify a product, company, or organization and sometimes used as trademarks, and that are symbol- or picture-based. [AAT]
notice	Announcements given for a specific purpose.
obituary	Published notices of a death, usually with a brief biography of the deceased. [AAT]
opinion	An article in a publication expressing the opinion of its author.

poll	An inquiry into public opinion conducted by interviewing a random sample of people [WORDNET]
pressRelease	Official or authoritative statements giving information for publication in newspapers or periodicals. [AAT]
productDescription	A description of a product with no editorial evaluation. (See “review”)
profile	An essay presenting noteworthy characteristics and achievements. Use “profile” for places and organizations and “biography” for individual persons.
quotation	A repetition or copy of the words or expressions of (another), usually with acknowledgment of the source. [after dictionary.com]
recipe	Sets of directions with a list of ingredients for making or preparing something, especially food. [AAT]
review	A description of some thing (e.g., a product, event, or service) that includes an editorial evaluation. (See “productDescription”)
schedule	Plans of procedure, showing the sequence of items or operations and the time allotted for each. [AAT]
tableOfContents	A sequential list of the parts of a work, usually with a page number or other symbols indicating where each part begins. [AAT]
transcript	Written record of words originally spoken, such as of court proceedings, broadcasts, or oral histories. [AAT]

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