



# XACML Intellectual Property Control (IPC) Profile Version 1.0

## OASIS Standard

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### Related work:

This specification is related to:

- *eXtensible Access Control Markup Language (XACML) Version 3.0*. Edited by Erik Rissanen. Latest version. <http://docs.oasis-open.org/xacml/3.0/xacml-3.0-core-spec-en.html>.

### Abstract:

This specification defines a profile for the use of XACML in expressing policies for intellectual property control (IPC). It defines standard attribute identifiers useful in such policies, and recommends attribute value ranges for certain attributes.

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# 1 Introduction

## {Non-normative}

This specification defines a profile for the use of the OASIS eXtensible Access Control Markup Language (XACML) [XACML3] to write and enforce policies for the purpose of providing access control for resources deemed intellectual property (hereinafter referred to as IP). Use of this profile requires no changes or extensions to the [XACML3] standard.

This specification begins with a non-normative discussion of the topics and terms of interest in this profile. The normative section of the specification describes the attributes defined by this profile and provides recommended usage patterns for attribute values.

This specification assumes the reader is somewhat familiar with XACML. A brief overview sufficient to understand these examples is available in [XACMLIntro].

For our purposes, IP may be defined as legal property rights over mental creations. IP owners can receive exclusive rights to their creations, if certain conditions are met. These exclusive rights can be exploited by the owner for profit, either directly through sales of products, or indirectly through licensing.

IP is an asset; perhaps the most valuable asset an organization has. IP can be licensed to other organizations in cases of outsourcing and/or to generate revenue from IP sharing arrangements.

IP value tends to increase when properly protected, though there are differing points of diminishing returns. IP protection doesn't guarantee security; it just provides a compensation mechanism for cases of unlawful exploitation. IP valuation and protection are often criteria for venture capital investors.

Broadly speaking, there are four main categories of intellectual property: copyrights, trademarks, trade secrets, and patents. Copyrights confer time-limited exclusive rights of ownership and/or use to the creator of the work. A copyright is typically used to protect artistic works such as photographs, music, books, etc. Copyrights are internationally recognized, though there are differences in the terms and enforcement. When copyright protection and status ends, resources are said to become public domain.

Trademarks are the IP protection scheme of names, logos, symbols, products, etc. For example, in the U.S. there are 2 main types:

- For general usage, or for not-yet-registered trademarks ™
- For trademarks registered with the USPTO ®

Trademarks are also internationally recognized through the Madrid system, which requires registration through the World Intellectual Property Organization (WIPO), a United Nations agency. The World Trade Organization also sets legal minimum standards for IP protection among member nations.

Patents are property rights granted to an inventor to prevent others from profiting from the invention for a limited time in exchange for public disclosure of the invention when the patent is granted. Patents apply to processes, machines, articles of manufacture, or composition of matter (including biological), or derived innovations. Patents require detailed disclosure of information, designs, processes, etc. Patents are administered in U.S. by the USPTO, and are internationally recognized by WTO TRIPS, WIPO, and European Patent Convention. When patent protection and status ends, resources are said to become public domain.

Trade secrets are IP protection of formulae, processes, designs, information, etc. that are not easily obtainable that a business uses for competitive advantage. They are often protected by legal contracts such as non-disclosure agreements, non-compete agreements, or proprietary information agreements. Trade secrets are the most common form of industrial IP protection, and outnumber patents. However, trade secrets are most often categorized as "proprietary" information, and may not be discovered as trade secrets unless litigated. They are not federally protected in the U.S., though most states have adopted the Uniform Trade Secrets Act. However, theft of trade secrets is prohibited by U.S. Economic Espionage Act of 1996. Trade secret status requires less disclosure than patents. Trade secrets are well protected by European Patent Convention as "know how". No international treaties protect trade secrets, though WTO TRIPS, GATT, and NAFTA have provisions for trade secret protection.

49 Other IP related concepts, such as **public domain and proprietary** will be defined in the glossary  
50 section.

51 The attributes and glossary terms defined below are not an exclusive or comprehensive list of all the  
52 attributes that may be required for rendering authorization decisions concerning IP. For example, PDPs  
53 would have to evaluate other entitlements, such as group membership, from PIPs (Policy Information  
54 Points). This profile is meant as a point of reference for implementing IP controls, and may be extended  
55 as needed for organizational purposes. Software vendors who choose to implement this profile should  
56 take the attributes herein as a framework for IP controls, but allow individual implementers some flexibility  
57 in constructing their own XACML-based authorization policies and PDPs.

58 Organizations not only create and use intellectual property, but they also often grant rights and/or license  
59 their IP to other organizations for a variety of reasons. Companies often license copyrighted, patented,  
60 and proprietary information to sub-contractors to provide goods or services in return. The information may  
61 be exchanged under several types of legal agreements, e.g., proprietary information agreements or  
62 patent grants. Also, organizations may grant the use of their trademarks to other businesses or non-profit  
63 institutions via trademark grants. These legal documents which grant rights to IP resources to others  
64 generally require that the licensed IP is protected. Thus, the agreements form the basis of access control  
65 policies, which can be expressed in XACML.

66 The goals of this profile are to create a framework of common IP-related attributes upon which  
67 authorization decisions can be rendered, and to promote federated authorization for access to IP  
68 resources. This profile will also provide XACML software developers and access control policy authors  
69 guidance on supporting IP use cases.

## 70 **1.1 Glossary**

### 71 **Agreement identifier**

72 A name, number, or other alphanumeric designator for referencing legal agreements which grant  
73 IP access.

### 74 **Agreement type**

75 The type of legal agreement which grants access to IP resources. Language granting rights to IP  
76 resources can be embedded in a number of different types of agreements. This profile includes  
77 URNs for the most common types: non-disclosure agreements, proprietary information  
78 agreements, technical data grants, patent grants, trademark grants, cross-licensing grants, and  
79 royalty-bearing.

### 80 **Authorized end use**

81 The specific authorized end uses to which the IP resource may be applied, in accordance with the  
82 IP agreement. This attribute represents a vocabulary of verbs or nominalizations that define the  
83 end-use activities appropriate for the work effort. Examples may include (but are not limited to):  
84 design, manufacture, and maintenance.

### 85 **Business context**

86 The type of organization to which a subject may belong. This profile lists a number of common  
87 affiliation types, including customer, supplier, partner, non-profit, government, primary contractor,  
88 sub-contractor, joint development, and authorized sub-licensor. In cases of joint development,  
89 organizations should agree on which resources were developed and by whom prior to the  
90 execution of the agreement (background IP), and determine rights and ownership of resources  
91 developed as a result of the agreement (foreground IP). The authorized sub-licensor value  
92 denotes organizations that have rights to sub-license resources that are granted by the IP-Owner.

### 93 **Copyright**

94 A form of limited and temporary government-granted monopoly which gives the creator of an  
95 original work some rights for a certain time period in relation to that work, including its publication,  
96 distribution and adaptation; after which time the work is said to enter the public domain. Copyright  
97 applies to concrete expressions of information, but not the information itself.

98

99	<b>Covered resource</b>
100	A resource that is named, described, or implied in an IP agreement as being covered or included
101	in the terms of the agreement.
102	<b>Covered subject</b>
103	A subject that is named, described, or implied in an IP agreement as being covered or included in
104	the terms of the agreement. (For example, a person who has an organizational affiliation with a
105	party to an agreement might be a covered subject of the agreement.)
106	<b>Effective date</b>
107	The date on which an intellectual property license takes effect, thereby implying access for
108	authorized purposes.
109	<b>Expiration date</b>
110	The date on which an intellectual property license expires, thereby terminating access.
111	<b>IP-Licensee</b>
112	A person or entity that has been designated (directly or indirectly) by the IP-Owner to have certain
113	rights to a particular IP resource.
114	<b>IP-Owner</b>
115	A designation for the person or entity that owns the intellectual property.
116	<b>Marking</b>
117	A visual indicator added to physical instances of intellectual property assets that provides policy
118	and/or procedural guidance.
119	<b>Organization</b>
120	A company or other legal entity of which a person can be an employee or agent.
121	<b>Patent</b>
122	A set of exclusive rights granted by a government to an inventor or his/her assignee for a limited
123	period of time in exchange for a disclosure of an invention.
124	<b>Proprietary</b>
125	Information developed by an organization for competitive advantage. "Proprietary" is used
126	synonymously with "trade secret". For this reason, this profile identifies trade secrets and related
127	terms such as confidential as "proprietary".
128	<b>Public domain</b>
129	Information that has been demoted from copyright, trademark, trade secret, or patented status.
130	No intellectual property controls are usually necessary for items considered public domain.
131	<b>Subject-ID</b>
132	Element specifies the principal that is the subject of the request context. May
133	include users, devices, or applications.
134	<b>Subject-to-Organization-Relationship</b>
135	The organizational relationship of the subject's organization (identified by the <code>organization</code>
136	attribute) to the organization that owns the IP resource. Examples include "employee" and
137	"contractor".
138	<b>Third-party proprietary</b>
139	Intellectual property which has been legally entrusted to the care and use of another organization.
140	To promote clarity, this profile utilizes the "Proprietary" resource attribute in conjunction with the
141	"IP-Owner" resource attribute to express this concept.
142	



143

#### 144 **Trademark**

145 A distinctive sign or indicator used by an individual, business organization, or other legal entity to  
146 identify that the products and/or services to consumers with which the trademark appears  
147 originate from a unique source of origin, and to distinguish its products or services from those of  
148 other entities.

#### 149 **Trade secret**

150 A formula, practice, process, design, instrument, pattern, or compilation of information which is  
151 not generally known or reasonably ascertainable, by which a business can obtain an economic  
152 advantage over competitors or customers. In some jurisdictions, such secrets are designated as  
153 "confidential", "limited distribution", or "restricted". Used synonymously with "Proprietary".

#### 154 **Work effort**

155 This attribute can be used to indicate the specific work effort, statement of work, project, or  
156 program which is associated with the IP resource. This attribute provides additional granularity to  
157 limit access to users within organizations to those with a specific need to know for a given work  
158 effort.

## 159 **1.2 Terminology**

160 The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD  
161 NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described  
162 in [RFC2119].

## 163 **1.3 Normative References**

- 164 **[RFC2119]** S. Bradner, *Key words for use in RFCs to Indicate Requirement Levels*,  
165 <http://www.ietf.org/rfc/rfc2119.txt>, IETF RFC 2119, March 1997.  
166
- 167 **[XACML3]** OASIS Standard, "eXtensible Access Control Markup Language (XACML)  
168 Version 3.0", April 2010. [http://docs.oasis-open.org/xacml/3.0/xacml-3.0-core-](http://docs.oasis-open.org/xacml/3.0/xacml-3.0-core-spec-en.doc)  
169 [spec-en.doc](http://docs.oasis-open.org/xacml/3.0/xacml-3.0-core-spec-en.doc)
- 170
- 171 **[XACML2]** OASIS Standard, "eXtensible Access Control Markup Language (XACML)  
172 Version 2.0", February 2005. [http://docs.oasis-](http://docs.oasis-open.org/xacml/2.0/access_control-xacml-2.0-core-spec-os.pdf)  
173 [open.org/xacml/2.0/access\\_control-xacml-2.0-core-spec-os.pdf](http://docs.oasis-open.org/xacml/2.0/access_control-xacml-2.0-core-spec-os.pdf)
- 174
- 175 **[XACML1]** OASIS Standard, "eXtensible Access Control Markup Language (XACML)  
176 Version 1.0", February 2003. [http://www.oasis-](http://www.oasis-open.org/committees/download.php/2406/oasis-xacml-1.0.pdf)  
177 [open.org/committees/download.php/2406/oasis-xacml-1.0.pdf](http://www.oasis-open.org/committees/download.php/2406/oasis-xacml-1.0.pdf)  
178

## 179 **1.4 Non-Normative References**

- 180 **[XACMLIntro]** OASIS XACML TC, *A Brief Introduction to XACML*, 14 March 2003,  
181 [http://www.oasis-](http://www.oasis-open.org/committees/download.php/2713/Brief_Introduction_to_XACML.html)  
182 [open.org/committees/download.php/2713/Brief\\_Introduction\\_to\\_XACML.html](http://www.oasis-open.org/committees/download.php/2713/Brief_Introduction_to_XACML.html)  
183
- 184 **[ISO3166]** ISO 3166 Maintenance agency (ISO 3166/MA),  
185 [http://www.iso.org/iso/country\\_codes.htm](http://www.iso.org/iso/country_codes.htm)
- 186 **[DublinCore]** Dublin Core Metadata Element Set, version 1.1.  
187 <http://dublincore.org/documents/dces/>

188 **1.5 Scope**

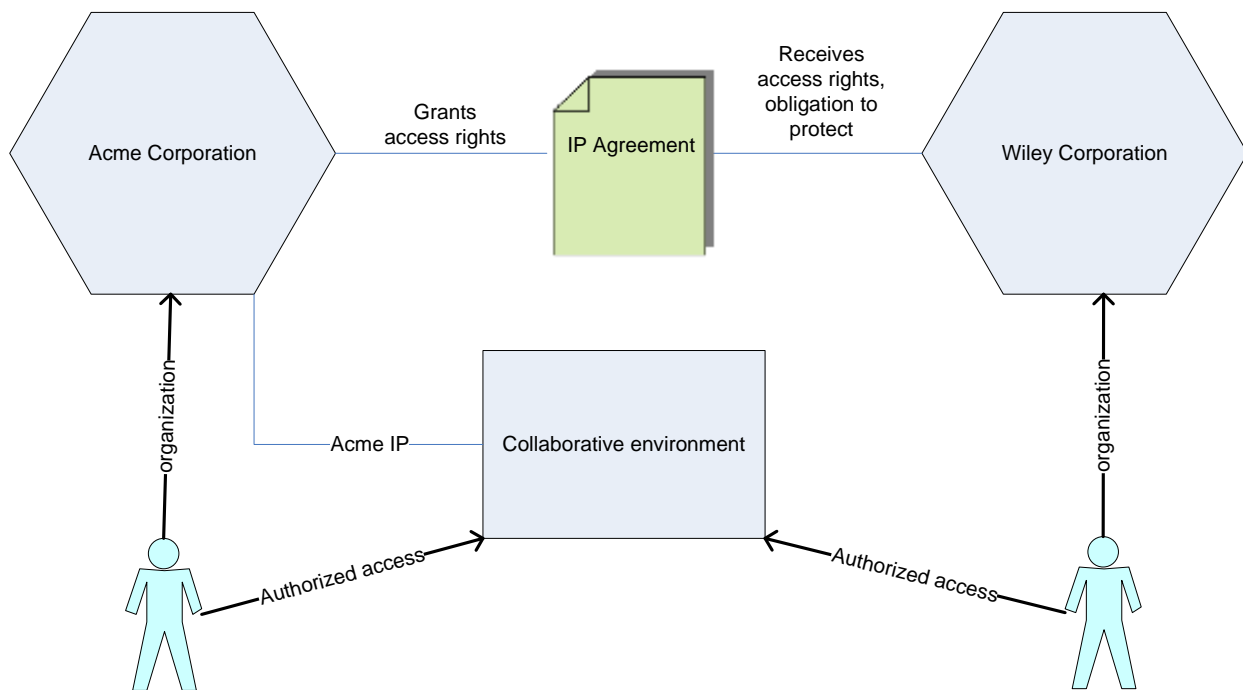
189 Many intellectual property access control decisions can be made on the basis of the resource's  
190 **copyright, trademark, patent, proprietary (trade secret)**, or other classification. This profile defines  
191 standard XACML attributes for these properties, and recommends the use of standardized attribute  
192 values.

193 In practice, an organization's intellectual property protection policies will be a mixture of rules derived  
194 from legal agreements, along with enterprise-specific policies and government regulations.

195 **1.6 Use cases**

196 PDPs (Policy Decision Points) may need to consider intellectual property protection schemes when  
197 evaluating authorization decisions. This profile is designed to provide a framework of additional  
198 <Attributes> for such decisions.

199 Refer to Figure 1 for an illustration of a typical scenario in which IP protection is a concern.



200  
201 *Figure 1 Typical IP scenario (Organization names are fictional.)*

202 The goal of this profile is to support the creation of interoperable XACML policies that permit and deny  
203 access as intended by the prevailing business rules. One such rule might be: "If the subject's  
204 `organization` matches the resource's `IP-Owner`, then Permit." Another might be "If the subject and  
205 resource are covered by the same `agreement-id`, then Permit."

206 The conditions that determine IP access include properties and relationships of entities remotely related  
207 to the subjects and resources involved in an IP transaction. XACML relies on data-valued attributes  
208 directly attached to subjects and resource. Therefore, the complex object structure representing the real  
209 world must be condensed to data values of attributes in the XACML categories. For example, a XACML  
210 request context for a subject might have `organization="999999"` and `agreement-`  
211 `identifier="CR-101"`. In this case, one particular attribute of the organization object representing  
212 "Acme Inc." has been selected to fill the XACML `subject:organization` attribute value. Multiple  
213 object relationships from subjects to "IP Agreement" may exist, and would be telescoped into the single  
214 string value, depicted as "IP Agreement", of the `subject:agreement-id` attribute. This "flattening"  
215 process is somewhat arbitrary; however, it must not introduce ambiguity, and may be influenced by

216 performance or implementation considerations. Some of the attributes specified in this profile represent  
217 some such flattening process, and assume the existence of some types of remote objects that may not be  
218 represented directly in an XACML context.

## 219 **1.7 Disclaimer**

220 NOTHING IN THIS PROFILE IS INTENDED TO BE A LEGALLY CORRECT INTERPRETATION OR  
221 APPLICATION OF U.S. OR ANY GOVERNMENT INTELLECTUAL PROPERTY LAWS OR  
222 REGULATIONS. USE OF THIS PROFILE IN AN ACCESS CONTROL SYSTEM DOES NOT  
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226 ENFORCING INTELLECTUAL PROPERTY LAWS, NOR BY ANY LEGAL EXPERT IN THIS FIELD.

227 Organizations that use this profile should ensure their intellectual property protection by engaging  
228 qualified professional legal services.

---

## 229 2 Profile

### 230 2.1 Resource Attributes

231 Information objects may contain more than one type of intellectual property. Therefore, it is possible that  
232 information objects may have more than one IP type categorization: copyright, patent, proprietary, public  
233 domain, or trademark. In cases where information objects have more than one true value for the IP type  
234 resource attributes, policy authors may utilize policies and policy sets with the appropriate combining  
235 algorithms to determine which policies take precedence in the evaluation process. A table listing IP type  
236 categorization overlaps is provided in Appendix B.

#### 237 2.1.1 Copyright

238 The Copyright value shall be designated with the following attribute identifier:

239 `urn:oasis:names:tc:xacml:3.0:ipc:resource:copyright`

240 The `DataType` of this attribute is <http://www.w3.org/2001/XMLSchema#boolean>. This attribute  
241 denotes whether the resource is designated as the intellectual property type “copyright”.

#### 242 2.1.2 Patent

243 The Patent value shall be designated with the following attribute identifier:

244 `urn:oasis:names:tc:xacml:3.0:ipc:resource:patent`

245 The `DataType` of this attribute is <http://www.w3.org/2001/XMLSchema#boolean>. This attribute  
246 denotes whether the resource is designated as the intellectual property type “patent”.

#### 247 2.1.3 Proprietary

248 The Proprietary value shall be designated with the following attribute identifier:

249 `urn:oasis:names:tc:xacml:3.0:ipc:resource:proprietary`

250 The `DataType` of this attribute is <http://www.w3.org/2001/XMLSchema#boolean>. This attribute  
251 denotes whether the resource is designated as the intellectual property type “proprietary”.

#### 252 2.1.4 Public-Domain

253 The Public-Domain value shall be designated with the following attribute identifier:

254 `urn:oasis:names:tc:xacml:3.0:ipc:resource:public-domain`

255 The `DataType` of this attribute is <http://www.w3.org/2001/XMLSchema#boolean>. This attribute  
256 denotes whether the resource is designated as the intellectual property type “public domain”.

#### 257 2.1.5 Trademark

258 The Trademark value shall be designated with the following attribute identifier:

259 `urn:oasis:names:tc:xacml:3.0:ipc:resource:trademark`

260 The `DataType` of this attribute is <http://www.w3.org/2001/XMLSchema#boolean>. This attribute  
261 denotes whether the resource is designated as the intellectual property type “trademark”.

#### 262 2.1.6 IP-Owner

263 IP-Owner classification values shall be designated with the following attribute identifier:

264 `urn:oasis:names:tc:xacml:3.0:ipc:resource:ip-owner`

265 The `DataType` of this attribute is <http://www.w3.org/2001/XMLSchema#string>. This attribute  
266 names the owner of the IP. A common scheme such as DUNS SHOULD be used to promote  
267 interoperability. The range of values for this attribute SHOULD be similar to that of the IP-Licensee and  
268 Organization resource attributes.

## 269 2.1.7 IP-Licensee

270 IP-Licensee classification values shall be designated with the following attribute identifier:

```
271 urn:oasis:names:tc:xacml:3.0:ipc:resource:ip-licensee
```

272 The `DataType` of this attribute is <http://www.w3.org/2001/XMLSchema#string>. This attribute  
273 names the designated custodian of the IP. A common scheme such as DUNS SHOULD be used to  
274 promote interoperability. The range of values for this attribute SHOULD be similar to that of the IP-Owner  
275 and Organization resource attributes.

## 276 2.1.8 Agreement-Type

277 Agreement-Type classification values shall be designated with the following attribute identifier:

```
278 urn:oasis:names:tc:xacml:3.0:ipc:resource:agreement-type
```

279 The `DataType` of this attribute is <http://www.w3.org/2001/XMLSchema#anyURI>.

280 This attribute can be used to indicate whether or not a specific resource is governed by a particular  
281 license arrangement.

282 The range of URN values of this attribute SHALL be

```
283 urn:oasis:names:tc:xacml:3.0:ipc:resource:agreement-type:non-  
284 disclosure-agreement  
285 urn:oasis:names:tc:xacml:3.0:ipc:resource:agreement-type:proprietary-  
286 information-agreement  
287 urn:oasis:names:tc:xacml:3.0:ipc:resource:agreement-type:technical-  
288 data-grant  
289 urn:oasis:names:tc:xacml:3.0:ipc:resource:agreement-type:copyright-  
290 grant  
291 urn:oasis:names:tc:xacml:3.0:ipc:resource:agreement-type:patent-grant  
292 urn:oasis:names:tc:xacml:3.0:ipc:resource:agreement-type:trademark-  
293 grant  
294 urn:oasis:names:tc:xacml:3.0:ipc:resource:agreement-type:cross-  
295 licensing-grant  
296 urn:oasis:names:tc:xacml:3.0:ipc:resource:agreement-type:royalty-  
297 bearing
```

## 298 2.1.9 Agreement-Id

299 The business document representing the IP agreement that covers this resource shall be designated with  
300 the following attribute identifier.

```
301 urn:oasis:names:tc:xacml:3.0:ipc:resource:agreement-id
```

302 The `DataType` of this attribute is <http://www.w3.org/2001/XMLSchema#string>.

303 One scenario in which this attribute can be used is in the case where one or more resource documents  
304 are *tagged* with metadata associated with the resource and one such tag represents the agreement id. In  
305 this scenario it is assumed that there is only one agreement that covers those resources. An alternative  
306 scenario is to let the policy determine the appropriate agreement associated with the resource  
307 authorization request. In this alternative scenario the resource agreement-id attribute would not be used  
308 in the XACML request.

### 309 **2.1.10 Valid-Agreement-Exists**

310 The indicator in which a business document representing the IP agreement that covers this resource  
311 exists shall be designated with the following attribute identifier.

312 `urn:oasis:names:tc:xacml:3.0:ipc:resource:valid-agreement-exists`

313 The `DataType` of this attribute is <http://www.w3.org/2001/XMLSchema#boolean>.

314 One scenario in which this attribute can be used is in the case where a PEP indicates whether or not an  
315 agreement exists. In this scenario it is assumed that the determination on whether an agreement exists  
316 occurs before the authorization request is sent to a PDP. An alternative scenario is to let the PDP  
317 determine if the appropriate agreement, associated with the resource authorization request, exists via an  
318 attribute query to a PIP. In this alternative scenario the resource `valid-agreement-exists` attribute would  
319 not be used in the XACML request.

### 320 **2.1.11 Number-Of-Valid-Agreements**

321 The number of business documents representing the IP agreement that covers this resource shall be  
322 designated with the following attribute identifier.

323 `urn:oasis:names:tc:xacml:3.0:ipc:resource:number-of-valid-agreements`

324 The `DataType` of this attribute is <http://www.w3.org/2001/XMLSchema#integer>.

325 Although this attribute can be used in the case where a PEP indicates the number of agreements that  
326 exist in the authorization request; a more likely scenario is to let the PDP determine the number of  
327 agreements, associated with the resource authorization request, that exists via an attribute query to a PIP.  
328 In this alternative scenario the resource `number-of-valid-agreements` attribute would not be used in the  
329 XACML request.

### 330 **2.1.12 Work-Effort**

331 Work-effort values shall be designated with the following attribute identifier:

332 `urn:oasis:names:tc:xacml:3.0:ipc:resource:work-effort`

333 The `DataType` of this attribute is <http://www.w3.org/2001/XMLSchema#string>.

334 This attribute can be used to indicate the specific work effort, statement of work, project, or program  
335 which is associated with the IP resource. This attribute provides additional granularity to limit access to  
336 users within organizations to those with a specific need to know for a given work effort.

### 337 **2.1.13 Authorized-End-Use**

338 Authorized-end-use values shall be designated with the following attribute identifier:

339 `urn:oasis:names:tc:xacml:3.0:ipc:resource:authorized-end-use`

340 The `DataType` of this attribute is <http://www.w3.org/2001/XMLSchema#anyURI>.

341 This attribute can be used to indicate the specific authorized end uses to which the IP resource may be  
342 applied, in accordance with the IP agreement. This attribute represents a vocabulary of verbs or  
343 nominalizations that define the end-use activities appropriate for the work effort. Examples may include  
344 (but are not limited to): design, manufacture, and maintenance.

345 The range of URN values of this attribute SHALL be

346 `urn:oasis:names:tc:xacml:3.0:ipc:resource:authorized-end-use:design`  
347 `urn:oasis:names:tc:xacml:3.0:ipc:resource:authorized-end-`  
348 `use:manufacture`  
349 `urn:oasis:names:tc:xacml:3.0:ipc:resource:authorized-end-`  
350 `use:maintenance`

351

## 352 2.1.14 Effective-Date

353 Effective-date values shall be designated with the following attribute identifier:

354 `urn:oasis:names:tc:xacml:3.0:ipc:resource:effective-date`

355 The `DataType` of this attribute is <http://www.w3.org/2001/XMLSchema#dateTime>.

356 This attribute can be used to indicate the date and time in which an intellectual property license takes  
357 effect, thereby implying access for authorized purposes. This attribute may also convey the date and  
358 time in which other resource attributes become valid; for example, when a copyright or patent is granted.

## 359 2.1.15 Expiration-Date

360 Expiration-date values shall be designated with the following attribute identifier:

361 `urn:oasis:names:tc:xacml:3.0:ipc:resource:expiration-date`

362 The `DataType` of this attribute is <http://www.w3.org/2001/XMLSchema#dateTime>.

363 The date and time in which an intellectual property license expires, thereby terminating access. This  
364 attribute may also convey the date and time in which other resource attribute elements are no longer  
365 valid; for example, when a copyright or patent expires.

## 366 2.2 Subject Attributes

### 367 2.2.1 Subject-ID

368 Subject-ID classification values shall be designated with the following attribute identifier:

369 `urn:oasis:names:tc:xacml:3.0:ipc:subject:subject-id`

370 The `DataType` of this attribute is <http://www.w3.org/2001/XMLSchema#string>.

371 This is the identifier for the subject, which may include user identifiers, machine identifiers, and/or  
372 application identifiers.

### 373 2.2.2 Organization

374 Organization classification values shall be designated with the following attribute identifier:

375 `urn:oasis:names:tc:xacml:3.0:ipc:subject:organization`

376 The `DataType` of this attribute is <http://www.w3.org/2001/XMLSchema#string>.

377 Organization shall denote the organization with which the subject in the request is affiliated. More  
378 specifically, this attribute should denote the organization or organizations that have a controlling interest  
379 in the subject's intellectual property rights and responsibilities with respect to the current request. A  
380 common scheme such as DUNS SHOULD be used to promote interoperability. Whichever range of  
381 values is chosen, it should coincide with the range of IP-Owner and IP-Licensee.

### 382 2.2.3 Business-Context

383 The business context of the subject's organization (identified by the `organization` attribute) to the  
384 organization that owns the resource (identified by the `ip-owner` attribute) SHALL be designated with the  
385 following attribute identifier:

386 `urn:oasis:names:tc:xacml:3.0:ipc:subject:business-context`

387 The `DataType` of this attribute is <http://www.w3.org/2001/XMLSchema#anyURI>.

388 Recommended URN values for this attribute are:

389 `urn:oasis:names:tc:xacml:3.0:ipc:subject:business-context:customer`

390 `urn:oasis:names:tc:xacml:3.0:ipc:subject:business-context:supplier`

391 `urn:oasis:names:tc:xacml:3.0:ipc:subject:business-context:partner`

```
392 urn:oasis:names:tc:xacml:3.0:ipc:subject:business-context:primary-
393 contractor
394 urn:oasis:names:tc:xacml:3.0:ipc:subject:business-
395 context:subcontractor
396 urn:oasis:names:tc:xacml:3.0:ipc:subject:business-context:authorized-
397 sublicensor
```

398 This profile does not specify how to interpret the meaning of `business-context` in a  
399 request context containing multiple values of `organization` or `ip-owner`.

## 400 2.2.4 Subject-To-Organization-Relationship

401 This attribute identifies the type of affiliation that the subject of the request has with the organization  
402 identified by the `organization` attribute. `Subject-to-organization-relationship` classification  
403 values shall be designated with the following attribute identifier:

```
404 urn:oasis:names:tc:xacml:3.0:ipc:subject:subject-to-organization-
405 relationship
```

406 The `DataType` of this attribute is <http://www.w3.org/2001/XMLSchema#anyURI>.

407 Implementers can create sub-categories of `Subject-to-organization-relationship` to represent  
408 roles or functions within their organizations. Some recommended values of the attribute SHALL be

```
409 urn:oasis:names:tc:xacml:3.0:ipc:subject:subject-to-organization-
410 relationship:employee
411 urn:oasis:names:tc:xacml:3.0:ipc:subject:subject-to-organization-
412 relationship:contractor
```

413 A request context may contain multiple values for this attribute; however, this profile does not specify how  
414 to interpret the meaning of multiple values of `subject-to-organization-relationship` in a  
415 request context containing multiple values of `organization`.

## 416 2.2.5 Agreement-Id

417 The business document representing the IP agreement that covers this subject shall be designated with  
418 the following attribute identifier.

```
419 urn:oasis:names:tc:xacml:3.0:ipc:subject:agreement-id
```

420 The `DataType` of this attribute is <http://www.w3.org/2001/XMLSchema#string>.

## 421 2.3 Obligations

422 The `<Obligation>` element will be used in the XACML response to notify requestor that additional  
423 processing requirements are needed. This profile focuses on the use of obligations to encryption and  
424 visual marking. The XACML response may contains one or more obligations. Processing of an  
425 obligation is application specific. An `<Obligation>` may contain the object (resource) action pairing  
426 information. If multiple vocabularies are used for resource definitions the origin of the vocabulary MUST  
427 be identified.

428 The obligation should conform to following structure:

```
429 urn:oasis:names:tc:xacml:3.0:ipc:obligation
```

### 430 2.3.1 Encrypt

431 The `Encrypt` obligation shall be designated with the following identifier:

```
432 urn:oasis:names:tc:xacml:3.0:ipc:obligation:encrypt
```

433 The `encrypt` obligation can be used to command PEPs (Policy Enforcement Points) to encrypt the  
434 resource. This profile does not specify the type of encryption or other parameters to be used; rather, the  
435 details of implementation are left to the discretion of policy authors and software developers as to how to  
436 best meet their individual requirements.



437

438 The following is an example of the Encrypt obligation:

```
439 <ObligationExpressions>
440   <ObligationExpression
441     ObligationId="urn:oasis:names:tc:xacml:3.0:ipc:obligation:encrypt"
442     FulfillOn="Permit"/>
443   </ObligationExpression>
444 </ObligationExpressions>
```

## 445 2.3.2 Marking

446 Marking classification values shall be designated with the following identifier:

```
447 urn:oasis:names:tc:xacml:3.0:ipc:obligation:marking
```

448 The marking obligation can be used to command PEPs (Policy Enforcement Points) to embed visual  
449 marks, sometimes called watermarks, on data viewed both on-screen and in printed form. Policy authors  
450 may use this obligation to meet legal or contractual requirements by forcing PEPs to display text or  
451 graphics in accordance with <Permit> decisions. This profile does not specify the text or graphics which  
452 can be rendered; rather, the details of implementation are left to the discretion of policy authors as to how  
453 to best meet their individual requirements.

454

455 The following is an example of the marking obligation:

```
456 <ObligationExpressions>
457   <ObligationExpression
458     ObligationId="urn:oasis:names:tc:xacml:3.0:ipc:obligation:marking"
459     FulfillOn="Permit">
460     <AttributeAssignmentExpression
461       AttributeId="urn:oasis:names:tc:xacml:3.0:example:attribute:text">
462       <AttributeValue
463         DataType="http://www.w3.org/2001/XMLSchema#string"
464         >Copyright 2011 Acme</AttributeValue>
465     </AttributeAssignmentExpression>
466   </ObligationExpression>
467 </ObligationExpressions>
```

---

468 **3 Identifiers**

469 This profile defines the following URN identifiers.

470 **3.1 Profile Identifier**

471 The following identifier SHALL be used as the identifier for this profile when an identifier in the form of a  
472 URI is required.

473 `urn:oasis:names:tc:xacml:3.0:ipc`

474

## 4 Examples (non-normative)

475

This section contains examples of how the profile attributes can be used.

476

### 4.1 Copyright

477

This example illustrates the use of a copyright for the following scenario:

478

*ip-owner (Acme) grants ip-Licensee (Wiley Corp) the right to use copyrighted materials (software, images, multimedia) for a limited time in exchange for fees. ip-licensee must protect licensed material from unauthorized usage.*

479

480

481

Subject attributes	Resource attributes	Obligations
<i>organization: Wiley Corp</i>	<i>copyright: true</i>	<i>encrypt</i>
<i>agreement-id: CR101</i>	<i>ip-owner: Acme</i>	<i>marking: Copyright 2011 Acme</i>
	<i>ip-licensee: Wiley Corp</i>	
	<i>agreement-type: copyright-grant</i>	
	<i>agreement-id: CR101</i>	
	<i>effective-date: 2011-07-01T00:00:00</i>	
	<i>expiration-date: 2021-06-30T00:00:00</i>	

482

483

#### 4.1.1 Copyright Request

484

485

```

<Request ReturnPolicyIdList="true"
  CombinedDecision="false"
  xmlns="urn:oasis:names:tc:xacml:3.0:core:schema:wd-17">
  <Attributes Category="urn:oasis:names:tc:xacml:1.0:subject-category:access-subject">
    <Attribute
      AttributeId="urn:oasis:names:tc:xacml:3.0:ipc:subject:organization"
      IncludeInResult="true">
      <AttributeValue DataType="http://www.w3.org/2001/XMLSchema#string"
        >Wiley Corp</AttributeValue>
    </Attribute>
    <Attribute AttributeId="urn:oasis:names:tc:xacml:3.0:ipc:subject:agreement-id"
      IncludeInResult="true">
      <AttributeValue DataType="http://www.w3.org/2001/XMLSchema#string"
        >CR101</AttributeValue>
    </Attribute>
  </Attributes>
  <Attributes Category="urn:oasis:names:tc:xacml:3.0:attribute-category:resource">
    <Attribute AttributeId="urn:oasis:names:tc:xacml:3.0:ipc:resource:copyright"
      IncludeInResult="true">
      <AttributeValue DataType="http://www.w3.org/2001/XMLSchema#boolean"
        >true</AttributeValue>
    </Attribute>
    <Attribute AttributeId="urn:oasis:names:tc:xacml:3.0:ipc:resource:ip-owner"
      IncludeInResult="true">
      <AttributeValue DataType="http://www.w3.org/2001/XMLSchema#string"
        >Acme</AttributeValue>
    </Attribute>
    <Attribute AttributeId="urn:oasis:names:tc:xacml:3.0:ipc:resource:ip-licensee"
      IncludeInResult="true">
      <AttributeValue DataType="http://www.w3.org/2001/XMLSchema#string"
        >Wiley Corp</AttributeValue>
  </Attributes>

```

515

```

516     </Attribute>
517     <Attribute AttributeId="urn:oasis:names:tc:xacml:3.0:ipc:resource:agreement-type"
518       IncludeInResult="true">
519       <AttributeValue DataType="http://www.w3.org/2001/XMLSchema#anyURI"
520         >urn:oasis:names:tc:xacml:3.0:ipc:resource:agreement-type:copyright-
521 grant</AttributeValue>
522     </Attribute>
523     <Attribute AttributeId="urn:oasis:names:tc:xacml:3.0:ipc:resource:agreement-id"
524       IncludeInResult="true">
525     <AttributeValue DataType="http://www.w3.org/2001/XMLSchema#string"
526       >CR101</AttributeValue>
527     </Attribute>
528     <Attribute
529       AttributeId="urn:oasis:names:tc:xacml:3.0:ipc:resource:effective-date"
530       IncludeInResult="true">
531     <AttributeValue DataType="http://www.w3.org/2001/XMLSchema#dateTime"
532       >2011-07-01T00:00:00</AttributeValue>
533     </Attribute>
534     <Attribute
535       AttributeId="urn:oasis:names:tc:xacml:3.0:ipc:resource:expiration-date"
536       IncludeInResult="true">
537     <AttributeValue DataType="http://www.w3.org/2001/XMLSchema#dateTime"
538       >2021-06-30T00:00:00</AttributeValue>
539     </Attribute>
540   </Attributes>
541 </Request>

```

## 4.1.2 Copyright Policy

This policy can be summarized as follows:

**Target:** This policy is only applicable to resource type copyright  
AND the agreement-type copyright-grant

**Rule:** This rule is only applicable if Resource ip-owner = Acme  
Then if

Subject organization = Wiley Corp AND

Subject agreement-id = Resource agreement-id (CR101, in this case) AND

Resource ip-licensee = Wiley Corp AND

“Date and Time” is in the range of effective-date and expiration-date

Then PERMIT

**Obligation:**

On PERMIT mark AND encrypt the resource.

```

559 <Policy xmlns="urn:oasis:names:tc:xacml:3.0:core:schema:wd-17"
560     PolicyId="copyright-approve"
561     RuleCombiningAlgId="urn:oasis:names:tc:xacml:1.0:rule-combining-algorithm:deny-
562 overrides"
563     Version="1">
564 <Description>Example copyright material policy</Description>
565 <Target>
566 <AnyOf>
567 <AllOf>
568 <Match MatchId="urn:oasis:names:tc:xacml:1.0:function:boolean-equal">
569 <AttributeValue DataType="http://www.w3.org/2001/XMLSchema#boolean"
570 >true</AttributeValue>
571 <AttributeDesignator
572 AttributeId="urn:oasis:names:tc:xacml:3.0:ipc:resource:copyright"
573 Category="urn:oasis:names:tc:xacml:3.0:attribute-category:resource"
574 DataType="http://www.w3.org/2001/XMLSchema#boolean"
575 MustBePresent="false"/>
576 </Match>
577 <Match MatchId="urn:oasis:names:tc:xacml:1.0:function:anyURI-equal">
578 <AttributeValue DataType="http://www.w3.org/2001/XMLSchema#anyURI"
579 >urn:oasis:names:tc:xacml:3.0:ipc:resource:agreement-type:copyright-
580 grant</AttributeValue>
581 <AttributeDesignator
582 AttributeId="urn:oasis:names:tc:xacml:3.0:ipc:resource:agreement-type"
583 Category="urn:oasis:names:tc:xacml:3.0:attribute-category:resource"
584 DataType="http://www.w3.org/2001/XMLSchema#anyURI"
585 MustBePresent="false"/>
586 </Match>
587 </AllOf>
588 </AnyOf>
589 </Target>
590 <Rule Effect="Permit" RuleId="Right to use copyrighted material match">
591 <Description>Allow if subject's association to the designated custodian of the
592 copyright agrees</Description>
593 <Target>
594 <AnyOf>
595 <AllOf>
596 <Match MatchId="urn:oasis:names:tc:xacml:1.0:function:string-equal">
597 <AttributeValue DataType="http://www.w3.org/2001/XMLSchema#string"
598 >Acme</AttributeValue>
599 <AttributeDesignator
600 AttributeId="urn:oasis:names:tc:xacml:3.0:ipc:resource:ip-owner"
601 Category="urn:oasis:names:tc:xacml:3.0:attribute-category:resource"
602 DataType="http://www.w3.org/2001/XMLSchema#string"
603 MustBePresent="false"/>
604 </Match>
605 </AllOf>
606 </AnyOf>
607 </Target>
608 <Condition>
609 <Apply FunctionId="urn:oasis:names:tc:xacml:1.0:function:and">
610 <Apply FunctionId="urn:oasis:names:tc:xacml:1.0:function:string-equal">
611 <AttributeValue DataType="http://www.w3.org/2001/XMLSchema#string"
612 >Wiley Corp</AttributeValue>
613 <Apply FunctionId="urn:oasis:names:tc:xacml:1.0:function:string-one-and-only">
614 <AttributeDesignator
615 AttributeId="urn:oasis:names:tc:xacml:3.0:ipc:subject:organization"
616 Category="urn:oasis:names:tc:xacml:1.0:subject-category:access-subject"
617 DataType="http://www.w3.org/2001/XMLSchema#string"
618 MustBePresent="false"/>
619 </Apply>
620 </Apply>
621 <Apply FunctionId="urn:oasis:names:tc:xacml:1.0:function:string-equal">
622 <Apply FunctionId="urn:oasis:names:tc:xacml:1.0:function:string-one-and-only">
623 <AttributeDesignator
624 AttributeId="urn:oasis:names:tc:xacml:3.0:ipc:subject:agreement-id"
625 Category="urn:oasis:names:tc:xacml:1.0:subject-category:access-subject"
626 DataType="http://www.w3.org/2001/XMLSchema#string"
627 MustBePresent="false"/>
628 </Apply>
629 <Apply FunctionId="urn:oasis:names:tc:xacml:1.0:function:string-one-and-only">
630 <AttributeDesignator
631

```

```

632         AttributeId="urn:oasis:names:tc:xacml:3.0:ipc:resource:agreement-id"
633         Category="urn:oasis:names:tc:xacml:3.0:attribute-category:resource"
634         DataType="http://www.w3.org/2001/XMLSchema#string"
635         MustBePresent="false"/>
636     </Apply>
637 </Apply>
638 <Apply FunctionId="urn:oasis:names:tc:xacml:1.0:function:string-equal">
639     <AttributeValue DataType="http://www.w3.org/2001/XMLSchema#string"
640     >Wiley Corp</AttributeValue>
641     <Apply FunctionId="urn:oasis:names:tc:xacml:1.0:function:string-one-and-only">
642         <AttributeDesignator
643             AttributeId="urn:oasis:names:tc:xacml:3.0:ipc:resource:ip-licensee"
644             Category="urn:oasis:names:tc:xacml:3.0:attribute-category:resource"
645             DataType="http://www.w3.org/2001/XMLSchema#string"
646             MustBePresent="false"/>
647         </Apply>
648     </Apply>
649     <Apply FunctionId="urn:oasis:names:tc:xacml:1.0:function:dateTime-greater-than-
650 or-equal">
651         <Apply
652             FunctionId="urn:oasis:names:tc:xacml:1.0:function:dateTime-one-and-only">
653             <AttributeDesignator
654                 AttributeId="urn:oasis:names:tc:xacml:1.0:environment:current-dateTime"
655                 Category="urn:oasis:names:tc:xacml:3.0:attribute-category:environment"
656                 DataType="http://www.w3.org/2001/XMLSchema#dateTime"
657                 MustBePresent="false"/>
658             </Apply>
659             <Apply
660                 FunctionId="urn:oasis:names:tc:xacml:1.0:function:dateTime-one-and-only">
661                 <AttributeDesignator
662                     AttributeId="urn:oasis:names:tc:xacml:3.0:ipc:resource:effective-date"
663                     Category="urn:oasis:names:tc:xacml:3.0:attribute-category:resource"
664                     DataType="http://www.w3.org/2001/XMLSchema#dateTime"
665                     MustBePresent="false"/>
666                 </Apply>
667             </Apply>
668             <Apply FunctionId="urn:oasis:names:tc:xacml:1.0:function:dateTime-less-than">
669                 <Apply
670                     FunctionId="urn:oasis:names:tc:xacml:1.0:function:dateTime-one-and-only">
671                     <AttributeDesignator
672                         AttributeId="urn:oasis:names:tc:xacml:1.0:environment:current-dateTime"
673                         Category="urn:oasis:names:tc:xacml:3.0:attribute-category:environment"
674                         DataType="http://www.w3.org/2001/XMLSchema#dateTime"
675                         MustBePresent="false"/>
676                     </Apply>
677                 </Apply>
678                 FunctionId="urn:oasis:names:tc:xacml:1.0:function:dateTime-one-and-only">
679                     <AttributeDesignator
680                         AttributeId="urn:oasis:names:tc:xacml:3.0:ipc:resource:expiration-date"
681                         Category="urn:oasis:names:tc:xacml:3.0:attribute-category:resource"
682                         DataType="http://www.w3.org/2001/XMLSchema#dateTime"
683                         MustBePresent="false"/>
684                     </Apply>
685                 </Apply>
686             </Apply>
687         </Condition>
688     </Rule>
689 <ObligationExpressions>
690     <ObligationExpression
691         ObligationId="urn:oasis:names:tc:xacml:3.0:ipc:obligation:marking"
692         FulfillOn="Permit">
693         <AttributeAssignmentExpression
694             AttributeId="urn:oasis:names:tc:xacml:3.0:example:attribute:text">
695             <AttributeValue DataType="http://www.w3.org/2001/XMLSchema#string"
696             >Copyright 2011 Acme</AttributeValue>
697         </AttributeAssignmentExpression>
698         </ObligationExpression>
699     <ObligationExpression
700         ObligationId="urn:oasis:names:tc:xacml:3.0:ipc:obligation:encrypt"
701         FulfillOn="Permit">
702         </ObligationExpression>
703 </ObligationExpressions>
704 </Policy>

```

705 **4.2 Trademark**

706 This example illustrates the use of a trademark for the following scenario:

707 *ip-owner (Acme) grants ip-licensee (Wiley Foundation), a charitable organization, the right to use their*  
 708 *trademark logo for a limited time. ip-licensee must protect licensed material from unauthorized usage.*

709

Subject attributes	Resource attributes	Obligations
<i>organization: Wiley Foundation</i>	<i>trademark: true</i>	Marking: <b>Acme</b>
<i>agreement-id: CR102</i>	<i>ip-owner: Acme</i>	
	<i>ip-licensee: Wiley Foundation</i>	
	<i>agreement-type: trademark-grant</i>	
	<i>agreement-id: CR102</i>	
	<i>effective-date: 2011-07-01T00:00:00</i>	
	<i>expiration-date: 2021-06-30T00:00:00</i>	

710 **4.2.1 Trademark Request**

```

711 <Request ReturnPolicyIdList="true"
712   CombinedDecision="false"
713   xmlns="urn:oasis:names:tc:xacml:3.0:core:schema:wd-17">
714   <Attributes Category="urn:oasis:names:tc:xacml:1.0:subject-category:access-subject">
715     <Attribute
716       AttributeId="urn:oasis:names:tc:xacml:3.0:ipc:subject:organization"
717       IncludeInResult="true">
718       <AttributeValue DataType="http://www.w3.org/2001/XMLSchema#string"
719         >Wiley Foundation</AttributeValue>
720     </Attribute>
721     <Attribute AttributeId="urn:oasis:names:tc:xacml:3.0:ipc:subject:agreement-id"
722       IncludeInResult="true">
723       <AttributeValue DataType="http://www.w3.org/2001/XMLSchema#string"
724         >CR102</AttributeValue>
725     </Attribute>
726   </Attributes>
727   <Attributes Category="urn:oasis:names:tc:xacml:3.0:attribute-category:resource">
728     <Attribute AttributeId="urn:oasis:names:tc:xacml:3.0:ipc:resource:trademark"
729       IncludeInResult="true">
730       <AttributeValue DataType="http://www.w3.org/2001/XMLSchema#boolean"
731         >true</AttributeValue>
732     </Attribute>
733     <Attribute AttributeId="urn:oasis:names:tc:xacml:3.0:ipc:resource:ip-owner"
734       IncludeInResult="true">
735       <AttributeValue DataType="http://www.w3.org/2001/XMLSchema#string"
736         >Acme</AttributeValue>
737     </Attribute>
738     <Attribute AttributeId="urn:oasis:names:tc:xacml:3.0:ipc:resource:ip-licensee"
739       IncludeInResult="true">
740       <AttributeValue DataType="http://www.w3.org/2001/XMLSchema#string"
741         >Wiley Corp</AttributeValue>
742     </Attribute>
743     <Attribute AttributeId="urn:oasis:names:tc:xacml:3.0:ipc:resource:agreement-type"
744       IncludeInResult="true">
745       <AttributeValue DataType="http://www.w3.org/2001/XMLSchema#anyURI"
746         >urn:oasis:names:tc:xacml:3.0:ipc:resource:agreement-type:trademark-
747       grant</AttributeValue>
748     </Attribute>
749     <Attribute AttributeId="urn:oasis:names:tc:xacml:3.0:ipc:resource:agreement-id"
750       IncludeInResult="true">
751       <AttributeValue DataType="http://www.w3.org/2001/XMLSchema#string"
752         >CR102</AttributeValue>
753     </Attribute>
754     <Attribute AttributeId="urn:oasis:names:tc:xacml:3.0:ipc:resource:effective-date"
  
```

```

755         IncludeInResult="true">
756         <AttributeValue DataType="http://www.w3.org/2001/XMLSchema#dateTime"
757         >2011-07-01T00:00:00</AttributeValue>
758     </Attribute>
759     <Attribute AttributeId="urn:oasis:names:tc:xacml:3.0:ipc:resource:expiration-date"
760     IncludeInResult="true">
761     <AttributeValue DataType="http://www.w3.org/2001/XMLSchema#dateTime"
762     >2021-06-30T00:00:00</AttributeValue>
763     </Attribute>
764 </Attributes>
765 </Request>

```

## 766 4.2.2 Trademark Policy

767 This policy can be summarized as follows:

768

769 **Target:** This policy is only applicable to resource type “trademark” AND ip-owner = “Acme”

770

771 **Rule:** This rule is only applicable if Subject organization = Wiley Foundation

772 Then if

773 Subject agreement-id = Resource agreement-id (CR102, in this case) AND

774 “Date and Time” is in the range of effective-date and expiration-date THEN

775 PERMIT

776

777 **Obligation:**

778 On PERMIT mark the resource.

779

```

780 <Policy xmlns="urn:oasis:names:tc:xacml:3.0:core:schema:wd-17"
781 PolicyId="trademark-approve"
782 RuleCombiningAlgId="urn:oasis:names:tc:xacml:1.0:rule-combining-algorithm:deny-
783 overrides"
784 Version="1">
785 <Description>Example trademark policy</Description>
786 <Target>
787 <AnyOf>
788 <AllOf>
789 <Match MatchId="urn:oasis:names:tc:xacml:1.0:function:boolean-equal">
790 <AttributeValue DataType="http://www.w3.org/2001/XMLSchema#boolean"
791 >true</AttributeValue>
792 <AttributeDesignator
793 AttributeId="urn:oasis:names:tc:xacml:3.0:ipc:resource:trademark"
794 Category="urn:oasis:names:tc:xacml:3.0:attribute-category:resource"
795 DataType="http://www.w3.org/2001/XMLSchema#boolean"
796 MustBePresent="false"/>
797 </Match>
798 <Match MatchId="urn:oasis:names:tc:xacml:1.0:function:string-equal">
799 <AttributeValue DataType="http://www.w3.org/2001/XMLSchema#string"
800 >Acme</AttributeValue>
801 <AttributeDesignator
802 AttributeId="urn:oasis:names:tc:xacml:3.0:ipc:resource:ip-owner"
803 Category="urn:oasis:names:tc:xacml:3.0:attribute-category:resource"
804 DataType="http://www.w3.org/2001/XMLSchema#string"
805 MustBePresent="false"/>
806 </Match>
807 </AllOf>
808 </AnyOf>
809 </Target>
810 <VariableDefinition VariableId="acme-agreement-id">
811 <AttributeValue DataType="http://www.w3.org/2001/XMLSchema#string"
812 >CR102</AttributeValue>
813 </VariableDefinition>
814 <Rule Effect="Permit" RuleId="Rights_to_use_trademark_match">
815 <Description>Allow if the IP owner grants use of trademark logo</Description>

```



```

816 <Target>
817   <AnyOf>
818     <AllOf>
819       <Match MatchId="urn:oasis:names:tc:xacml:1.0:function:string-equal">
820         <AttributeValue DataType="http://www.w3.org/2001/XMLSchema#string"
821           >Wiley Foundation</AttributeValue>
822         <AttributeDesignator
823           AttributeId="urn:oasis:names:tc:xacml:3.0:ipc:subject:organization"
824           Category="urn:oasis:names:tc:xacml:1.0:subject-category:access-subject"
825           DataType="http://www.w3.org/2001/XMLSchema#string"
826           MustBePresent="false"/>
827       </Match>
828     </AllOf>
829   </AnyOf>
830 </Target>
831 <Condition>
832   <Apply FunctionId="urn:oasis:names:tc:xacml:1.0:function:and">
833     <Apply FunctionId="urn:oasis:names:tc:xacml:1.0:function:string-equal">
834       <VariableReference VariableId="acme-agreement-id"/>
835       <Apply FunctionId="urn:oasis:names:tc:xacml:1.0:function:string-one-and-only">
836         <AttributeDesignator
837           AttributeId="urn:oasis:names:tc:xacml:3.0:ipc:subject:agreement-id"
838           Category="urn:oasis:names:tc:xacml:1.0:subject-category:access-subject"
839           DataType="http://www.w3.org/2001/XMLSchema#string"
840           MustBePresent="false"/>
841       </Apply>
842     </Apply>
843     <Apply FunctionId="urn:oasis:names:tc:xacml:1.0:function:string-equal">
844       <VariableReference VariableId="acme-agreement-id"/>
845       <Apply FunctionId="urn:oasis:names:tc:xacml:1.0:function:string-one-and-only">
846         <AttributeDesignator
847           AttributeId="urn:oasis:names:tc:xacml:3.0:ipc:resource:agreement-id"
848           Category="urn:oasis:names:tc:xacml:3.0:attribute-category:resource"
849           DataType="http://www.w3.org/2001/XMLSchema#string"
850           MustBePresent="false"/>
851       </Apply>
852     </Apply>
853     <Apply
854       FunctionId="urn:oasis:names:tc:xacml:1.0:function:dateTime-greater-than-or-equal">
855       <Apply
856         FunctionId="urn:oasis:names:tc:xacml:1.0:function:dateTime-one-and-only">
857         <AttributeDesignator
858           AttributeId="urn:oasis:names:tc:xacml:1.0:environment:current-dateTime"
859           Category="urn:oasis:names:tc:xacml:3.0:attribute-category:environment"
860           DataType="http://www.w3.org/2001/XMLSchema#dateTime"
861           MustBePresent="false"/>
862         </Apply>
863       <Apply
864         FunctionId="urn:oasis:names:tc:xacml:1.0:function:dateTime-one-and-only">
865         <AttributeDesignator
866           AttributeId="urn:oasis:names:tc:xacml:3.0:ipc:resource:effective-date"
867           Category="urn:oasis:names:tc:xacml:3.0:attribute-category:resource"
868           DataType="http://www.w3.org/2001/XMLSchema#dateTime"
869           MustBePresent="false"/>
870         </Apply>
871       </Apply>
872     <Apply FunctionId="urn:oasis:names:tc:xacml:1.0:function:dateTime-less-than">
873       <Apply
874         FunctionId="urn:oasis:names:tc:xacml:1.0:function:dateTime-one-and-only">
875         <AttributeDesignator
876           AttributeId="urn:oasis:names:tc:xacml:1.0:environment:current-dateTime"
877           Category="urn:oasis:names:tc:xacml:3.0:attribute-category:environment"
878           DataType="http://www.w3.org/2001/XMLSchema#dateTime"
879           MustBePresent="false"/>
880         </Apply>
881       <Apply
882         FunctionId="urn:oasis:names:tc:xacml:1.0:function:dateTime-one-and-only">
883         <AttributeDesignator
884           AttributeId="urn:oasis:names:tc:xacml:3.0:ipc:resource:expiration-date"
885           Category="urn:oasis:names:tc:xacml:3.0:attribute-category:resource"
886           DataType="http://www.w3.org/2001/XMLSchema#dateTime"
887           MustBePresent="false"/>
888         </Apply>

```

```

889     </Apply>
890   </Apply>
891 </Condition>
892 </Rule>
893 <ObligationExpressions>
894   <ObligationExpression
895     ObligationId="urn:oasis:names:tc:xacml:3.0:ipc:obligation:marking"
896     FulfillOn="Permit" >
897     <AttributeAssignmentExpression
898       AttributeId="urn:oasis:names:tc:xacml:3.0:example:attribute:text">
899       <AttributeValue DataType="http://www.w3.org/2001/XMLSchema#string"
900         >Acme</AttributeValue>
901     </AttributeAssignmentExpression>
902   </ObligationExpression>
903 </ObligationExpressions>
904 </Policy>

```

## 905 4.3 Proprietary

906 This example illustrates the use of a trade secret for the following scenario:

907 *ip-owner (Acme) grants ip-licensee (Wiley Corp) the right to use Acme trade secrets, technical drawings in this*  
 908 *case, for a limited time for creation of products sold to ip-owner. ip-licensee and ip-owner must protect*  
 909 *licensed material from unauthorized usage.*

910

Subject attributes	Resource attributes	Obligations
<i>organization: Wiley Corp</i>	<i>proprietary: true</i>	<i>encrypt</i>
<i>subject-to-organization-relationship: supplier</i>	<i>ip-owner: Acme</i>	<i>marking: Acme Proprietary Information: Limited Distribution</i>
<i>agreement-id: CR103</i>	<i>ip-licensee: Wiley Corp</i>	
	<i>agreement-type: technical-data-grant</i>	
	<i>valid-agreement-exists: true</i>	
	<i>agreement-id: CR103</i>	
	<i>work-effort: Acme Products</i>	
	<i>authorized-end-use: manufacture</i>	

### 911 4.3.1 Proprietary Request

```

912 <Request ReturnPolicyIdList="true" CombinedDecision="false"
913   xmlns="urn:oasis:names:tc:xacml:3.0:core:schema:wd-17">
914   <Attributes Category="urn:oasis:names:tc:xacml:1.0:subject-category:access-subject">
915     <Attribute
916       AttributeId="urn:oasis:names:tc:xacml:3.0:ipc:subject:agreement-id"
917       IncludeInResult="true">
918       <AttributeValue
919         DataType=http://www.w3.org/2001/XMLSchema#string
920         >CR103</AttributeValue>
921     </Attribute>
922     <Attribute
923       AttributeId="urn:oasis:names:tc:xacml:3.0:ipc:subject:organization"
924       IncludeInResult="true">
925       <AttributeValue DataType=http://www.w3.org/2001/XMLSchema#string
926         >Wiley Corp</AttributeValue>
927     </Attribute>
928     <Attribute
929       AttributeId="urn:oasis:names:tc:xacml:3.0:ipc:subject:subject-to-organization-
930 relationship"
931       IncludeInResult="true">
932     <AttributeValue DataType=http://www.w3.org/2001/XMLSchema#anyURI

```

```

933         >urn:oasis:names:tc:xacml:3.0:ipc:subject:subject-to-organization-
934 relationship:supplier</AttributeValue>
935     </Attribute>
936 </Attributes>
937 <Attributes Category="urn:oasis:names:tc:xacml:3.0:attribute-category:resource">
938     <Attribute
939         AttributeId="urn:oasis:names:tc:xacml:3.0:ipc:resource:ip-owner"
940         IncludeInResult="true">
941         <AttributeValue DataType=http://www.w3.org/2001/XMLSchema#string
942             >Acme</AttributeValue>
943     </Attribute>
944     <Attribute
945         AttributeId="urn:oasis:names:tc:xacml:3.0:ipc:resource:agreement-type"
946         IncludeInResult="true">
947         <AttributeValue DataType=http://www.w3.org/2001/XMLSchema#anyURI
948             >urn:oasis:names:tc:xacml:3.0:ipc:resource:agreement-type:technical-data-
949 grant</AttributeValue>
950     </Attribute>
951     <Attribute
952         AttributeId="urn:oasis:names:tc:xacml:3.0:ipc:resource:proprietary"
953         IncludeInResult="true">
954         <AttributeValue DataType=http://www.w3.org/2001/XMLSchema#boolean
955             >true</AttributeValue>
956     </Attribute>
957     <Attribute
958         AttributeId="urn:oasis:names:tc:xacml:3.0:ipc:resource:ip-licensee"
959         IncludeInResult="true">
960         <AttributeValue DataType=http://www.w3.org/2001/XMLSchema#string
961             >Wiley Corp</AttributeValue>
962     </Attribute>
963     <Attribute
964         AttributeId="urn:oasis:names:tc:xacml:3.0:ipc:resource:work-effort"
965         IncludeInResult="true">
966         <AttributeValue DataType=http://www.w3.org/2001/XMLSchema#string
967             >Acme Products</AttributeValue>
968     </Attribute>
969     <Attribute
970         AttributeId="urn:oasis:names:tc:xacml:3.0:ipc:resource:authorized-end-use"
971         IncludeInResult="true">
972         <AttributeValue DataType=http://www.w3.org/2001/XMLSchema#anyURI
973             >urn:oasis:names:tc:xacml:3.0:ipc:resource:authorized-end-
974 use:manufacture</AttributeValue>
975     </Attribute>
976 </Attributes>
977 <Attributes Category="urn:oasis:names:tc:xacml:3.0:attribute-category:environment">
978     <Attribute
979         AttributeId="urn:oasis:names:tc:xacml:1.0:environment:current-dateTime"
980         IncludeInResult="true">
981         <AttributeValue DataType=http://www.w3.org/2001/XMLSchema#dateTime
982             >2012-11-27T00:00:00</AttributeValue>
983     </Attribute>
984 </Attributes>
985 </Request>

```

986

## 987 4.3.2 Proprietary Policy

988 This policy can be summarized as follows:

989

990 **Target:** This policy is only applicable to resource type “proprietary” AND ip-owner = Acme

991

992 **Rule:** This rule is only applicable if valid-agreement-exists\*

993 Then if

994 Subject agreement-id= Resource agreement-id (CR103, in this case)

995 Then PERMIT

996  
997  
998  
999  
1000  
1001  
1002  
1003  
1004  
1005  
1006  
1007  
1008  
1009  
1010  
1011  
1012  
1013  
1014  
1015  
1016  
1017  
1018  
1019  
1020  
1021  
1022  
1023  
1024  
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1031  
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1049  
1050  
1051  
1052  
1053  
1054  
1055  
1056  
1057  
1058  
1059  
1060  
1061  
1062  
1063

**Obligation:**

On PERMIT mark AND encrypt the resource.

\* Note: The PDP determines if a valid agreement exists via an attribute query to a PIP.

```
<Policy xmlns="urn:oasis:names:tc:xacml:3.0:core:schema:wd-17"
  PolicyId="proprietary-approve"
  RuleCombiningAlgId="urn:oasis:names:tc:xacml:1.0:rule-combining-algorithm:deny-
overrides"
  Version="1">
  <Description>Example proprietary (trade secret) material policy</Description>
  <Target>
    <AnyOf>
      <AllOf>
        <Match MatchId="urn:oasis:names:tc:xacml:1.0:function:boolean-equal">
          <AttributeValue DataType="http://www.w3.org/2001/XMLSchema#boolean"
            >true</AttributeValue>
          <AttributeDesignator
            AttributeId="urn:oasis:names:tc:xacml:3.0:ipc:resource:proprietary"
            Category="urn:oasis:names:tc:xacml:3.0:attribute-category:resource"
            DataType="http://www.w3.org/2001/XMLSchema#boolean"
            MustBePresent="false"/>
        </Match>
        <Match MatchId="urn:oasis:names:tc:xacml:1.0:function:string-equal">
          <AttributeValue DataType="http://www.w3.org/2001/XMLSchema#string"
            >Acme</AttributeValue>
          <AttributeDesignator
            AttributeId="urn:oasis:names:tc:xacml:3.0:ipc:resource:ip-owner"
            Category="urn:oasis:names:tc:xacml:3.0:attribute-category:resource"
            DataType="http://www.w3.org/2001/XMLSchema#string"
            MustBePresent="false"/>
        </Match>
      </AllOf>
    </AnyOf>
  </Target>
  <Rule Effect="Permit" RuleId="Rights_to_use_match">
    <Description>Allow if ip owner grants right to use technical data</Description>
    <Target>
      <AnyOf>
        <AllOf>
          <Match MatchId="urn:oasis:names:tc:xacml:1.0:function:boolean-equal">
            <AttributeValue DataType="http://www.w3.org/2001/XMLSchema#boolean"
              >true</AttributeValue>
            <AttributeDesignator
              AttributeId="urn:oasis:names:tc:xacml:3.0:ipc:resource:valid-agreement-
exists"
              Category="urn:oasis:names:tc:xacml:3.0:attribute-category:resource"
              DataType="http://www.w3.org/2001/XMLSchema#boolean"
              MustBePresent="false"/>
          </Match>
        </AllOf>
      </AnyOf>
    </Target>
    <Condition>
      <Apply FunctionId="urn:oasis:names:tc:xacml:1.0:function:string-equal">
        <Apply
          FunctionId="urn:oasis:names:tc:xacml:1.0:function:string-one-and-only">
          <AttributeDesignator
            AttributeId="urn:oasis:names:tc:xacml:3.0:ipc:subject:agreement-id"
            Category="urn:oasis:names:tc:xacml:1.0:subject-category:access-subject"
            DataType="http://www.w3.org/2001/XMLSchema#string"
            MustBePresent="false"/>
          </Apply>
        <Apply
          FunctionId="urn:oasis:names:tc:xacml:1.0:function:string-one-and-only">
          <AttributeDesignator
            AttributeId="urn:oasis:names:tc:xacml:3.0:ipc:resource:agreement-id"
```

```
1064         Category="urn:oasis:names:tc:xacml:3.0:attribute-category:resource"
1065         DataType="http://www.w3.org/2001/XMLSchema#string"
1066         MustBePresent="false"/>
1067     </Apply>
1068 </Apply>
1069 </Condition>
1070 </Rule>
1071 <ObligationExpressions>
1072   <ObligationExpression
1073     ObligationId="urn:oasis:names:tc:xacml:3.0:ipc:obligation:marking"
1074     FulfillOn="Permit">
1075     <AttributeAssignmentExpression
1076       AttributeId="urn:oasis:names:tc:xacml:3.0:example:attribute:text">
1077       <AttributeValue DataType="http://www.w3.org/2001/XMLSchema#string"
1078         >Acme Proprietary Information: Limited Distribution</AttributeValue>
1079       </AttributeAssignmentExpression>
1080     </ObligationExpression>
1081   <ObligationExpression
1082     ObligationId="urn:oasis:names:tc:xacml:3.0:ipc:obligation:encrypt"
1083     FulfillOn="Permit">
1084   </ObligationExpression>
1085 </ObligationExpressions>
1086 </Policy>
1087
```

---

1088 **5 Conformance**

1089 Conformance to this profile is defined for **policies** and **requests** generated and transmitted within and  
1090 between XACML systems.

1091 **5.1 Attribute Identifiers**

1092 Conformant XACML **policies** and **requests** SHALL use the attribute identifiers defined in Section 2 for  
1093 their specified purpose and SHALL NOT use any other identifiers for the purposes defined by attributes in  
1094 this profile. The following table lists the attributes that must be supported.

1095 Note: “M” is mandatory “O” is optional.

1096

Identifiers	
urn:oasis:names:tc:xacml:3.0:ipc:resource:copyright	M
urn:oasis:names:tc:xacml:3.0:ipc:resource:patent	M
urn:oasis:names:tc:xacml:3.0:ipc:resource:proprietary	M
urn:oasis:names:tc:xacml:3.0:ipc:resource:public-domain	M
urn:oasis:names:tc:xacml:3.0:ipc:resource:trademark	M
urn:oasis:names:tc:xacml:3.0:ipc:resource:ip-owner	M
urn:oasis:names:tc:xacml:3.0:ipc:resource:ip-licensee	M
urn:oasis:names:tc:xacml:3.0:ipc:resource:agreement-id	M
urn:oasis:names:tc:xacml:3.0:ipc:resource:agreement-type	M
urn:oasis:names:tc:xacml:3.0:ipc:resource:valid-agreement-exists	O
urn:oasis:names:tc:xacml:3.0:ipc:resource:number-of-valid-agreements	O
urn:oasis:names:tc:xacml:3.0:ipc:resource:work-effort	M
urn:oasis:names:tc:xacml:3.0:ipc:resource:authorized-end-use	M
urn:oasis:names:tc:xacml:3.0:ipc:resource:effective-date	M
urn:oasis:names:tc:xacml:3.0:ipc:resource:expiration-date	M

urn:oasis:names:tc:xacml:3.0:ipc:subject:subject-id	M
urn:oasis:names:tc:xacml:3.0:ipc:subject:organization	M
urn:oasis:names:tc:xacml:3.0:ipc:subject:subject-to-organization-relationship	M
urn:oasis:names:tc:xacml:3.0:ipc:subject:business-context	M
urn:oasis:names:tc:xacml:3.0:ipc:subject:agreement-id	M
urn:oasis:names:tc:xacml:3.0:ipc:obligation:encrypt	M
urn:oasis:names:tc:xacml:3.0:ipc:obligation:marking	M

1097 **5.2 Attribute Values**

1098 Conformant XACML *policies* and *requests* SHALL use attribute values in the specified range or patterns  
1099 as defined for each attribute in Section 2 (when a range or pattern is specified).

1100 NOTE: In order to process conformant XACML *policies* and *requests* correctly, *PIP* and  
1101 *PEP* modules may have to translate native data values into the datatypes and formats  
1102 specified in this profile.

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1103 **Appendix A. Acknowledgements**

1104 The following individuals have participated in the creation of this specification and are gratefully  
1105 acknowledged:

1106 **Participants:**

- 1107 John Tolbert, The Boeing Company
- 1108 Crystal Hayes, The Boeing Company
- 1109 Richard Hill, The Boeing Company
- 1110 Paul Tyson, Bell Helicopter Textron
- 1111 Danny Thorpe, Quest Software
- 1112 Remon Sinnema, EMC
- 1113 Andy Han, Nextlabs Inc
- 1114 Erik Rissanen, Axiomatics AB
- 1115 David Brossard, Axiomatics AB

1116 **Committee members during profile development:**

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1117 **Appendix B. Non-Normative Text**

1118 This table maps possible overlaps between IP type classifications. This list is neither normative nor  
1119 exhaustive, but serves as a guide for interoperable implementations.

	<b>Copyright</b>	<b>Patent</b>	<b>Proprietary</b>	<b>Public- Domain</b>	<b>Trademark</b>
<b>Copyright</b>	-	Yes	No	No	Yes
<b>Patent</b>	Yes	-	No	No	Yes
<b>Proprietary</b>	No	No	-	No	No
<b>Public- Domain</b>	No	No	No	-	No
<b>Trademark</b>	Yes	Yes	No	No	-

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## Appendix C. Revision History

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Revision	Date	Editor	Changes Made
CD 1	6/18/2009	John Tolbert	Initial committee draft.
WD 2	2/25/2010	John Tolbert	Revised committee draft.
CD 2	5/5/10	John Tolbert	Revised committee draft, fixed links and formatting.
WD 3	8/9/2011	John Tolbert/Crystal Hayes	Added resource attributes for "Effective Date", "Expiration Date", and "Use Restrictions"; changed text for "License"; updated membership list.
WD4	9/7/2011	Paul Tyson, with response by John Tolbert and Crystal Hayes	Removed PII and Nationality from glossary. Removed Nationality as a subject attribute. Changed "License" to "Agreement". Added resource and subject attributes for "IP Agreement". Removed "Use Restrictions" and "Authority" from resource attributes. Moved "Encryption Type", "Marking", and "Disposal" to Obligations. Posed additional questions and comments for consideration.
WD5	10/13/2011	John Tolbert/Richard Hill	Removed all action attributes. Added "Affiliation Type" as a subject attribute. Removed "Disposal" as an obligation. Changed "Organization" to "Organizational-Affiliation". Added sample policies.
WD6	11/16/2011	John Tolbert, Richard Hill, Crystal Hayes, and Paul Tyson	Removed IP-Type and IP-Data, replaced with individual URNs. Added text to introduction and glossary. Incorporated Paul Tyson's changes from edited WD-05.
WD7	1/29/2012	John Tolbert, Richard Hill, Crystal Hayes, Paul Tyson, David Brossard, Danny Thorpe, Remon Sinnema	Added URNs for "Affiliation-Type" and "Agreement-Type". Added new subject attribute values with URNs for "Organizational-relationship" and "Organization-Type". Changed DataType of "Effective-Date" and "Expiration-Date" from date to dateTime. Changed some attribute descriptions. Fixed typographical errors. Changed (Updated) examples.
WD8	4/30/2012	John Tolbert, Richard Hill, Andy Han, Erik Rissanen	Changed attribute name "Organizational-Affiliation" to "Organization". Added additional guidance to descriptions to section 2.1 "Resource Attributes", section 2.1.9 "Agreement-Id", section 2.2.4 "Affiliation-Type".  Removed "profiles" from obligation urn

			examples. Updated examples; moved some rule target matches to the rule's condition section.
WD9	12/13/2012	John Tolbert, Richard Hill, Crystal Hayes, Erik Rissanen, Steven Legg, Jean-Paul Buu-Sau	Changed "organizational-relationship" to "subject-to-organization-relationship". Changed "affiliation-type" to "business-context". Added Subject-ID, Valid-Agreement-Exists, Number-of-valid-agreements, Authorized-end-use, and Work-effort. Updated examples.

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