5.1. Element <SubjectMatch>

The <SubjectMatch> element SHALL identify a set of *subject*-related entities by matching *attribute* values in the <xacml-context:Subject> element of the *context* with the embedded *attribute* value.

```
<xs:element name="SubjectMatch" type="xacml:SubjectMatchType"/>
<xs:complexType name="SubjectMatchType">
   <xs:sequence>
      <xs:choice>
         <xs:element ref="xacml:CategorizedSubjectAttributeDesignator"/>
         <xs:element ref="xacml:AttributeSelector"/>
      </xs:choice>
      <xs:element ref="xacml:AttributeValue"/>
   </xs:sequence>
   <xs:attribute name="MatchId" type="xs:anyURI" use="required"/>
</xs:complexType>
```

The <SubjectMatch> element is of the **SubjectMatchType** complex type.

The <SubjectMatch> element contains the following attributes and elements:

MatchId [Required]

    This attribute specifies the matching function. The value of this attribute MUST be of type xs:anyURI, with legal values documented in Appendix A.

<CategorizedSubjectAttributeDesignator> [Required choice]

    This element MAY be used to identify one or more *attribute* values in the <xacml-context:Subject> child elements of the <xacml-context:Request> element.

<AttributeSelector> [Required choice]

    This element MAY be used to identify one or more *attribute* values in the <xacml-context:Subject> child elements of the <xacml-context:Request> element.

<AttributeValue> [Required]

    This element contains the embedded *attribute* value.

5.2. Complex type AttributeDesignatorType

The **AttributeDesignatorType** complex type is the base type for elements and extensions that refer to *named attributes*. A *named attribute* has specific criteria with which to match *attributes* within a specific part of the <xacml-context:Request> element. The **AttributeDesignatorType** complex type specifies the attributes used for the match criteria that are common to all *named attributes*. Elements and extensions of the **AttributeDesignatorType** complex type MAY determine the presence of *named attributes* or select *attribute values* associated with *attributes* that match *named attributes*. Elements and extensions of the **AttributeDesignatorType** SHALL NOT alter the match semantics of *named attributes*, but MAY narrow the search space.

```
41    <xs:complexType name="AttributeDesignatorType">
42     <xs:attribute name="AttributeId"   type="xs:anyURI"  use="required"/>
43     <xs:attribute name="DataType"      type="xs:anyURI"  use="required"/>
44     <xs:attribute name="Issuer"        type="xs:anyURI"  use="optional"/>
45     <xs:attribute name="MustBePresent" type="xs:boolean" use="optional"/>
46    </xs:complexType>
```

48 A **named attribute** SHALL match an **attribute** if the values of their respective AttributeId,
49 DataType, and Issuer attributes match. The AttributeId attribute MUST match, by URI
50 equality, that of the AttributeId attribute of the **attribute**. The DataType attribute MUST match,
51 by URI equality, that of the DataType attribute of the same **attribute**. If the Issuer attribute is
52 supplied, it MUST match, by URI equality, the Issuer attribute of the same **attribute**. If the
53 Issuer attribute is not supplied, the matching of the **attribute** to the **named attribute** SHALL be
54 governed by AttributeId and DataType attributes alone, regardless of the presence, absence,
55 or actual value of the Issuer attribute.

56 The <AttributeDesignatorType> contains the following attributes:

57 AttributeId [Required]

58   This attribute SHALL specify the AttributeId with which to match the **attribute**.

59 DataType [Required]

60   This attribute SHALL specify the DataType with which to match the **attribute**.

61 Issuer [Optional]

62   This attribute, if supplied, SHALL specify the Issuer with which to match the **attribute**.

63 MustBePresent [Optional]

64   This attribute governs the whether the element returns **indeterminate** in the case of the
65   absence of the **named attribute**. If the **named attribute** is absent and MustBePresent is
66   set to true, this element SHALL result in **indeterminate**. If MustBePresent is not
67   supplied, its default value SHALL be false

5.3. Complex type CategorizedSubjectAttributeDesignatorType

70 The **CategorizedSubjectAttributeDesignatorType** complex type that extends the
71 **AttributeDesignatorType** complex type. It is the base type for elements and extensions that refer
72 to **named categorized subject attributes**. A **named categorized subject attribute** is defined as
73 follows:

74 A **subject** is represented by a <Subject> element of the <Subjects> element the <xacml-
75 context:Request> element. A **categorized subject** a **subject** that contains a particular **subject
76 category attribute**. A **subject attribute** is an attribute located in a particular **subject**. **A named
77 subject attribute** is a **named attribute** for a **subject**. A **subject category attribute** is the **subject
78 attribute** that matches **named subject attribute** with the AttributeId of
79 urn:org:oasis:tc:xacml:1.0:subject-category and the DataType of
80 urn:http://www.w3.org/2001/XMLSchema-instance#string. A **named categorized
81 subject attribute** is a **named subject attribute** for a particular **categorized subject**.

82 The **CategorizedSubjectAttributeDesignatorType** complex type extends the
83 **AttributeDesignatorType** with a `SubjectCategory` attribute. The
84 **CategorizedSubjectAttributeDesignatorType** extends the match semantics of the
85 **AttributeDesignatorType** such that it narrows the attribute search space to the specific
86 *categorized subject* such that value of the SubjectCategory attribute matches by string equality
87 the value of the subject's *subject category attribute*.

88 If there are multiple subjects with the same *subject category attribute*, they are treated as if they
89 were one *categorized subject*.

90 Elements and extensions of the **CategorizedSubjectAttributeDesignatorType** complex type
91 determine the presence or select *attribute values* associated with *named categorized subject*
92 *attributes*. Elements and extensions of the **CategorizedSubjectAttributeDesignatorType** SHALL
93 NOT alter the match semantics of *named categorized subject attributes*, but MAY narrow the
94 search space.

95

```
96   <xs:complexType name="CategorizedSubjectAttributeDesignatorType">
97    <xs:complexContent>
98      <xs:extension base="xacml: AttributeDesignatorType">
99        <xs:attribute name="SubjectCategory"
100                      type="xs:anyURI"
101                      use="optional"
102                      default=
103              "urn:org:oasis:tc:xacml:1.0:subject-category:access-subject"/>
104      </xs:extension>
105    </xs:complexContent>
106  </xs:complexType>
```

107

108 The `<CategorizedSubjectAttributeDesignatorType>` complex type contains the following
109 attribute in addition to the attributes of the **AttributeDesignatorType** complex type:

110 `SubjectCategory` [Optional]

111   This attribute SHALL specify the *categorized subject* from which to match *named subject*
112   *attributes*. If `SubjectCategory` is not supplied, its default value SHALL
113   `urn:org:oasis:tc:xacml:1.0:subject-category` :access-subject.

114

115   5.4.   Element <CategorizedSubjectAttributeIsPresent>

116 The <CategorizedSubjectAttributeIsPresent> element determines whether a *named categorized*
117 *subject attribute* is present or not. Its match semantics are that of the
118 **CategorizedSubjectAttributeDesignatorType**.

119 The `<CategorizedSubjectAttributeIsPresent >` element SHALL result in *true* if its *named*
120 *categorized subject attribute* is present. A result of *true* SHALL mean that a
121 `<CategorizedSubjectAttributeDesignator >` element for the same *named categorized*
122 *subject attribute* SHALL return a bag consisting of at least one *attribute value*. The
123 `MustBePresent` attribute governs whether this element returns *false* or *indeterminate* in the case
124 of the absence of the *named categorized subject attribute*. If the *named categorized subject*
125 *attribute* is not present and the `MustBePresent` attribute is set to `false` (its default value) this
126 element SHALL result in *false*. If the *named categorized subject attribute* is not present and the
127 `MustBePresent` attribute is set to `true`, this element SHALL result in *indeterminate*. Regardless
128 of the `MustBePresent` attribute, if it cannot be determined whether the *named categorized*

129 **subject attribute** is present or not present in the request context, or the value of the **named**
130 **categorized subject attribute** is unavailable, then the expression SHALL result in **indeterminate**.

131 A **named categorized subject attribute** SHALL be considered present if at least one **subject**
132 **attribute** exists that matches the values of its corresponding `AttributeId`, `DataType`, and
133 `Issuer` attributes from the **categorized subject** as per the match semantics of the
134 **CategorizedSubjectAttributeDesignatorType** specification [Section 5.3]

135 The `<CategorizedSubjectAttributeIsPresent>` MAY be passed to the `<Apply>` element
136 as an argument.

137

```
138        <xs:element name="CategorizedSubjectAttributeIsPresent"
139                    type="xacml: AttributeDesignatorType"/>
```

140

141 The `<CategorizedAttributeIsPresent>` element has the following attributes:

142 `AttributeId` [Required]

143   This attribute SHALL specify the `AttributeId` with which to match the **subject attribute**
144   of the **categorized subject**.

145 `DataType` [Required]

146   This attribute SHALL specify the DataType with which to match the **subject attribute** of the
147   **categorized subject**.

148 `Issuer` [Optional]

149   This attribute, if supplied, SHALL specify the `Issuer` with which to match the **subject**
150   **attribute** of the **categorized subject**.

151 `MustBePresent` [Optional]

152   This attribute governs the whether the `<CategorizedSubjectAttributeIsPresent>`
153   element returns **false** or **indeterminate** in the case of the absence of the **named**
154   **categorized subject attribute**. If the **named categorized subject attribute** is absent and
155   `MustBePresent` is set to `false`, this element SHALL result in **false**. If the **named**
156   **categorized subject attribute** is absent and `MustBePresent` is set to `true`, this element
157   SHALL result in **indeterminate**. If `MustBePresent` is not supplied, its default value
158   SHALL be `false`.

5.5. Element <CategorizedSubjectAttributeDesignator>

160 The <CategorizedSubjectAttributeDesignator> element selects attribute values that match **named**
161 **categorized subject attribute**. Its match semantics are that of the
162 **CategorizedSubjectAttributeDesignatorType**.

163 The `<CategorizedSubjectAttributeDesignator>` element SHALL return a bag of all the
164 **subject attribute values** that are matched by the **named categorized subject**. The
165 `MustBePresent` attribute governs whether this element returns an empty bag or **indeterminate** in
166 the case of the absence of the **named categorized subject attribute**. If the **named categorized**
167 **subject attribute** is not present and the `MustBePresent` attribute is set to `false` (its default
168 value) this element SHALL result in an empty bag. If the **named categorized subject attribute** is
169 not present and the `MustBePresent` attribute is set to `true`, this element SHALL result in
170 **indeterminate**. Regardless of the `MustBePresent` attribute, if it cannot be determined whether

171 the **named categorized subject attribute** is present or not present in the request context, or the
172 value of the **named categorized subject attribute** is unavailable, then the expression SHALL
173 result in **indeterminate**.

174 A **named categorized subject attribute** SHALL match a **subject attribute** as per the match
175 semantics specified in the **SubjectAttributeDesignatorType** complex type [Section 5.3].

176 The <CatagorizedSubjectAttributeDesignator> MAY appear in a <SubjectMatch>
177 element and MAY be passed to the <Apply> element as an argument.

178

```
179    <xs:element name="CatagorizedSubjectAttributeIsPresent"
180              type="xacml:SubjectAttributeDesignatorType"/>
```

181

182 The <CategorizedSubjectAttributeDesignator> element is of the
183 **SubjectAttributeDesignatorType** complex type.

184 The <CategorizedSubjectAttributeDesignator> element has the following attributes:

185 AttributeId [Required]

186   This attribute SHALL specify the AttributeId with which to match the **subject attribute**
187   within the **categorized subject**.

188 DataType [Required]

189   This attribute SHALL specify the DataType with which to match the **subject attribute** within
190   the **categorized subject**.

191 Issuer [Optional]

192   This attribute, if supplied, SHALL specify the Issuer with which to match the **subject**
193   **attribute** within the **categorized subject**.

194 MustBePresent [Optional]

195   This attribute governs the whether the <CategorizedSubjectAttributeDesignator>
196   element returns an empty bag or **indeterminate** in the case of the absence of the **named**
197   **categorized subject attribute**. If the **named categorized subject attribute** is absent and
198   MustBePresent is set to false, this element SHALL result in an empty bag. If the
199   **named categorized subject attribute** is absent and MustBePresent is set to true, this
200   element SHALL result in **indeterminate**. If MustBePresent is not supplied, its default
201   value SHALL be false.

5.6.   Element <ResourceAttributeIsPresent>

203

204 The <ResourceAttributeIsPresent> element determines whether a **named resource**
205 **attribute** is present. A **resource attribute** is an **attribute** that SHALL only be located within the
206 <Resource> element of the <xacml-context:Request> element. A **named resource**
207 **attribute** is a **named attribute** that matches a **resource attribute**. A **named resource attribute**
208 SHALL be considered *present*, i.e. *not absent*, if there is at least one **resource attribute** that
209 matches the criteria described below.

210 The <ResourceAttributeIsPresent> element SHALL result in **true** if its **named resource**
211 **attribute** is present. A result of **true** SHALL mean that a <ResourceAttributeDesignator>

212 element for this ***named resource attribute*** SHALL return a bag consisting of at least one ***attribute***
213 ***value***. The `MustBePresent` attribute governs whether this element returns ***false*** or ***indeterminate***
214 in the case of the absence of the ***named resource attribute***. If the ***named resource attribute*** is
215 not present and the `MustBePresent` attribute is set to `false` (its default value) this element
216 SHALL result in ***false***. If the ***named resource attribute*** is not present and the `MustBePresent`
217 attribute is set to `true`, this element SHALL result in ***indeterminate***. Regardless of the
218 `MustBePresent` attribute, if it cannot be determined whether the ***named resource attribute*** is
219 present or not present in the request context, or the value of the ***named resource attribute*** is
220 unavailable, then the expression SHALL result in ***indeterminate***.

221 A ***named resource attribute*** SHALL be considered present if at least one ***resource attribute***
222 exists that matches the values of its corresponding `AttributeId`, `DataType`, and `Issuer`
223 attributes as per the match semantics of the **AttributeDesignatorType** specification [Section 5.1].

224 The `<ResourceAttributeIsPresent>` MAY be passed to the `<Apply>` element as an
225 argument.

226

```
227    <xs:element name="ResourceAttributeIsPresent"
228                type="xacml:AttributeDesignatorType"/>
```

229

230 The `<ResourceAttributeIsPresent>` element is of the **AttributeDesignatorType** complex
231 type.

232 The `<ResourceAttributeIsPresent>` element has the following attributes:

233 `AttributeId` [Required]

234 This attribute SHALL specify the `AttributeId` with which to match the ***resource***
235 ***attribute***.

236 `DataType` [Required]

237 This attribute SHALL specify the DataType with which to match the ***resource attribute***.

238 `Issuer` [Optional]

239 This attribute, if supplied, SHALL specify the `Issuer` with which to match the ***resource***
240 ***attribute***.

241 `MustBePresent` [Optional]

242 This attribute governs the whether the <ResourceAttributeIsPresent> element returns ***false***
243 or ***indeterminate*** in the case of the absence of the ***named resource attribute***. If the
244 ***named resource attribute*** is absent and `MustBePresent` is set to `false`, this element
245 SHALL result in ***false***. If the ***named resource attribute*** is absent and `MustBePresent` is
246 set to `true`, this element SHALL result in ***indeterminate***. If `MustBePresent` is not
247 supplied, its default value SHALL be `false`.

248 ## 5.7. Element <ResourceAttributeDesignator>

249

250 The `<ResourceAttributeDesignator>` element retrieves a bag of values for a ***named***
251 ***resource attribute***. A ***resource attribute*** is an ***attribute*** that SHALL only be located within the
252 `<Resource>` element of the `<xacml-context:Request>` element. A ***named resource***

253 *attribute* is a *named attribute* that matches a *resource attribute*. A *named resource attribute*
254 SHALL be considered *present*, i.e. *not absent*, if there is at least one *resource attribute* that
255 matches the criteria below. A *resource attribute value* is an *attribute value* that is contained
256 within a *resource attribute*.

257 The `<ResourceAttributeDesignator>` element SHALL return a bag of all the *resource*
258 *attribute values* that are matched by the *named resource attribute*. The `MustBePresent`
259 attribute governs whether this element returns an empty bag or *indeterminate* in the case of the
260 absence of the *named resource attribute*. If the *named resource attribute* is not present and the
261 `MustBePresent` attribute is set to `false` (its default value) this element SHALL result in an empty
262 bag. If the *named resource attribute* is not present and the `MustBePresent` attribute is set to
263 `true`, this element SHALL result in *indeterminate*. Regardless of the `MustBePresent` attribute, if
264 it cannot be determined whether the *named resource attribute* is present or not present in the
265 request context, or the value of the *named resource attribute* is unavailable, then the expression
266 SHALL result in *indeterminate*.

267 A *named resource attribute* SHALL match a *resource attribute* as per the match semantics
268 specified in the **AttributeDesignatorType** complex type [Section 5.2]

269 The `<ResourceAttributeDesignator>` MAY appear in the `<ResourceMatch>` element and
270 MAY be passed to the `<Apply>` element as an argument.

271

```
272      <xs:element name="ResourceAttributeDesignator"
273                  type="xacml:AttributeDesignatorType"/>
```

274

275 The `<ResourceAttributeDesignator>` element is of the **AttributeDesignatorType** complex
276 type.

277 The `<ResourceAttributeDesignator>` element has the following attributes:

278 `AttributeId` [Required]

279   This attribute SHALL specify the `AttributeId` with which to match the *resource*
280   *attribute*.

281 `DataType` [Required]

282   This attribute SHALL specify the DataType with which to match the *resource attribute*.

283 `Issuer` [Optional]

284   This attribute, if supplied, SHALL specify the `Issuer` with which to match the *resource*
285   *attribute*.

286 `MustBePresent` [Optional]

287   This attribute governs the whether the `<ResourceAttributeDesignator>` element
288   returns an empty bag or *indeterminate* in the case of the absence of the *named resource*
289   *attribute*. If the *named resource attribute* is absent and `MustBePresent` is set to
290   `false`, this element SHALL result in an empty bag. If the *named resource attribute* is
291   absent and `MustBePresent` is set to `true`, this element SHALL result in *indeterminate*.
292   If `MustBePresent` is not supplied, its default value SHALL be `false`.

293

5.8. Element <ActionAttributeIsPresent>

294

295

The <ActionAttributeIsPresent> element determines whether a **named action attribute** is present. An **action attribute** is an **attribute** that SHALL only be located within the <Action> element of the <xacml-context:Request> element. A **named action attribute** is a **named attribute** that matches an **action attribute**. A **named action attribute** SHALL be considered *present*, i.e. *not absent*, if there is at least one **action attribute** that matches the criteria below

The <ActionAttributeIsPresent> element SHALL result in **true** if its **named action attribute** is present. A result of **true** SHALL mean that a <ActionAttributeDesignator> element for this **named action attribute** SHALL return a bag consisting of at least one **attribute value**. The MustBePresent attribute governs whether this element returns **false** or **indeterminate** in the case of the absence of the **named action attribute**. If the **named action attribute** is not present and the MustBePresent attribute is set to false (its default value) this element SHALL result in **false**. If the **named action attribute** is not present and the MustBePresent attribute is set to true, this element SHALL result in **indeterminate**. Regardless of the MustBePresent attribute, if it cannot be determined whether the **named action attribute** is present or not present in the request context, or the value of the **named action attribute** is unavailable, then the expression SHALL result in **indeterminate**.

A **named action attribute** SHALL be considered present if at least one **action attribute** exists that matches the values of its corresponding AttributeId, DataType, and Issuer attributes as per the match semantics of the **AttributeDesignatorType** specification [Section 5.2].

The <ActionAttributeIsPresent> MAY be passed to the <Apply> element as an argument.

316

```
<xs:element name="ActionAttributeIsPresent"
            type="xacml:AttributeDesignatorType"/>
```

319

The <ActionAttributeIsPresent> element is of the **AttributeDesignatorType** complex type.

The <ActionAttributeIsPresent> element has the following attributes:

AttributeId [Required]

> This attribute SHALL specify the AttributeId with which to match the **action attribute**.

DataType [Required]

> This attribute SHALL specify the DataType with which to match the **action attribute**.

Issuer [Optional]

> This attribute, if supplied, SHALL specify the Issuer with which to match the **action attribute**.

MustBePresent [Optional]

> This attribute governs the whether the <ActionAttributeIsPresent> element returns **false** or **indeterminate** in the case of the absence of the **named action attribute**. If the **named action attribute** is absent and MustBePresent is set to false, this element SHALL result in **false**. If the **named action attribute** is absent and MustBePresent is set to true, this element SHALL result in **indeterminate**. If MustBePresent is not supplied, its default value SHALL be false.

5.9. Element \<ActionAttributeDesignator\>

The \<ActionAttributeDesignator\> element retrieves a bag of values for a **named action attribute**. An **action attribute** is an **attribute** that SHALL only be located within the \<Action\> element of the \<xacml-context:Request\> element. A **named action attribute** has specific criteria (described below) with which to match an **action attribute**. A **named action attribute** SHALL be considered *present*, i.e. *not absent*, if there is at least one **action attribute** that matches the criteria. A **action attribute value** is an **attribute value** that is contained within a **action attribute**.

The \<ActionAttributeDesignator\> element SHALL return a bag of all the **action attribute values** that are matched by the **named action attribute**. The MustBePresent attribute governs whether this element returns an empty bag or **indeterminate** in the case of the absence of the **named action attribute**. If the **named action attribute** is not present and the MustBePresent attribute is set to false (its default value) this element SHALL result in an empty bag. If the **named action attribute** is not present and the MustBePresent attribute is set to true, this element SHALL result in **indeterminate**. Regardless of the MustBePresent attribute, if it cannot be determined whether the **named action attribute** is present or not present in the request context, or the value of the **named action attribute** is unavailable, then the expression SHALL result in **indeterminate**.

A **named action attribute** SHALL match a **action attribute** as per the match semantics specified in the **AttributeDesignatorType** complex type [Section 5.2].

The \<ActionAttributeDesignator\> MAY appear in the \<ActionMatch\> element and MAY be passed to the \<Apply\> element as an argument.

```
<xs:element name="ActionAttributeDesignator"
            type="xacml:AttributeDesignatorType"/>
```

The \<ActionAttributeDesignator\> element is of the **AttributeDesignatorType** complex type.

The \<ActionAttributeDesignator\> element has the following attributes:

AttributeId [Required]

> This attribute SHALL specify the AttributeId with which to match the **action attribute**.

DataType [Required]

> This attribute SHALL specify the DataType with which to match the **action attribute**.

Issuer [Optional]

> This attribute, if supplied, SHALL specify the Issuer with which to match the **action attribute**.

MustBePresent [Optional]

> This attribute governs the whether the \<ActionAttributeDesignator\> element returns an empty bag or **indeterminate** in the case of the absence of the **named action attribute**. If the **named action attribute** is absent and MustBePresent is set to false, this element SHALL result in an empty bag. If the **named action attribute** is absent and

378   `MustBePresent` is set to `true`, this element SHALL result in ***indeterminate***. If

379   `MustBePresent` is not supplied, its default value SHALL be `false`.

5.10. Element <EnvironmentAttributeIsPresent>

381

382 The `<EnvironmentAttributeIsPresent>` element determines whether a ***named environment***
383 ***attribute*** is present. An ***environment attribute*** is an ***attribute*** that SHALL only be located within
384 the `<Environment>` element of the `<xacml-context:Request>` element. A ***named***
385 ***environment attribute*** is a ***named attribute*** that matches an ***environment attribute***. A ***named***
386 ***environment attribute*** SHALL be considered *present*, i.e. *not absent*, if there is at least one
387 ***environment attribute*** that matches the criteria below.

388 The `<EnvironmentAttributeIsPresent>` element SHALL result in ***true*** if its ***named***
389 ***environment attribute*** is present. A result of ***true*** SHALL mean that a
390 `<EnvironmentAttributeDesignator>` element for this ***named environment attribute*** SHALL
391 return a bag consisting of at least one ***attribute value***. The `MustBePresent` attribute governs
392 whether this element returns ***false*** or ***indeterminate*** in the case of the absence of the ***named***
393 ***environment attribute***. If the ***named environment attribute*** is not present and the
394 `MustBePresent` attribute is set to `false` (its default value) this element SHALL result in ***false***. If
395 the ***named environment attribute*** is not present and the `MustBePresent` attribute is set to `true`,
396 this element SHALL result in ***indeterminate***. Regardless of the `MustBePresent` attribute, if it
397 cannot be determined whether the ***named environment attribute*** is present or not present in the
398 request context, or the value of the ***named environment attribute*** is unavailable, then the
399 expression SHALL result in ***indeterminate***.

400 A ***named environment attribute*** SHALL be considered present if at least one ***environment***
401 ***attribute*** exists that matches the values of its corresponding `AttributeId`, `DataType`, and
402 `Issuer` attributes as per the match semantics of the **AttributeDesignatorType** specification
403 [Section 5.2].

404 The `<EnvironmentAttributeIsPresent>` MAY be passed to the `<Apply>` element as an
405 argument.

406

```
407    <xs:element name="EnvironmentAttributeIsPresent"
408               type="xacml:AttributeDesignatorType"/>
```

409

410 The `<EnvironmentAttributeIsPresent>` element is of the **AttributeDesignatorType**
411 complex type.

412 The `<EnvironmentAttributeIsPresent>` element has the following attributes:

413 `AttributeId` [Required]

414   This attribute SHALL specify the `AttributeId` with which to match the ***environment***
415   ***attribute***.

416 `DataType` [Required]

417   This attribute SHALL specify the DataType with which to match the ***environment attribute***.

418 `Issuer` [Optional]

419 This attribute, if supplied, SHALL specify the `Issuer` with which to match the ***environment***
420 ***attribute***.

421 `MustBePresent` [Optional]

422 This attribute governs the whether the `<EnvironmentAttributeIsPresent>` element returns
423 ***false*** or ***indeterminate*** in the case of the absence of the ***named environment attribute***. If
424 the ***named environment attribute*** is absent and `MustBePresent` is set to `false`, this
425 element SHALL result in ***false***. If the ***named environment attribute*** is absent and
426 `MustBePresent` is set to `true`, this element SHALL result in ***indeterminate***. If
427 `MustBePresent` is not supplied, its default value SHALL be `false`.

5.11. Element <EnvironmentAttributeDesignator>

430 The `<EnvironmentAttributeDesignator>` element retrieves a bag of values for a ***named***
431 ***environment attribute***. A ***environment attribute*** is an ***attribute*** that SHALL only be located within
432 the `<Environment>` element of the `<xacml-context:Request>` element. A ***named***
433 ***environment attribute*** has specific criteria (described below) with which to match a ***environment***
434 ***attribute***. A ***named environment attribute*** SHALL be considered *present*, i.e. *not absent*, if there
435 is at least one ***environment attribute*** that matches the criteria. A ***environment attribute value*** is
436 an ***attribute value*** that is contained within a ***environment attribute***.

437 The `<EnvironmentAttributeDesignator>` element SHALL return a bag of all the
438 ***environment attribute values*** that are matched by the ***named environment attribute***. The
439 `MustBePresent` attribute governs whether this element returns an empty bag or ***indeterminate*** in
440 the case of the absence of the ***named environment attribute***. If the ***named environment***
441 ***attribute*** is not present and the `MustBePresent` attribute is set to `false` (its default value) this
442 element SHALL result in an empty bag. If the ***named environment attribute*** is not present and the
443 `MustBePresent` attribute is set to `true`, this element SHALL result in ***indeterminate***. Regardless
444 of the `MustBePresent` attribute, if it cannot be determined whether the ***named environment***
445 ***attribute*** is present or not present in the request context, or the value of the ***named environment***
446 ***attribute*** is unavailable, then the expression SHALL result in ***indeterminate***.

447 A ***named environment attribute*** SHALL match a ***environment attribute*** as per the match
448 semantics specified in the **AttributeDesignatorType** complex type [Section 5.2].

449 The `<EnvironmentAttributeDesignator>` MAY be passed to the `<Apply>` element as an
450 argument.

451

```
452      <xs:element name="EnvironmentAttributeDesignator"
453              type="xacml:AttributeDesignatorType"/>
```

454

455 The `<EnvironmentAttributeDesignator>` element is of the **AttributeDesignatorType**
456 complex type.

457 The `<EnvironmentAttributeDesignator>` element has the following attributes:

458 `AttributeId` [Required]

459 This attribute SHALL specify the `AttributeId` with which to match the ***environment***
460 ***attribute***.

461 `DataType` [Required]

462   This attribute SHALL specify the DataType with which to match the **environment attribute**.

463   Issuer [Optional]

464   This attribute, if supplied, SHALL specify the Issuer with which to match the **environment**
465   **attribute**.

466   MustBePresent [Optional]

467   This attribute governs the whether the <EnvironmentAttributeDesignator> element
468   returns an empty bag or **indeterminate** in the case of the absence of the **named**
469   **environment attribute**. If the **named environment attribute** is absent and
470   MustBePresent is set to false, this element SHALL result in an empty bag. If the
471   **named environment attribute** is absent and MustBePresent is set to true, this element
472   SHALL result in **indeterminate**. If MustBePresent is not supplied, its default value
473   SHALL be false.

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