Schema documentation for Detections.v1_2.xsd

february 18, 2021

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Namespace: "http://tethys.sdsu.edu/schema/1.0"

Schema(s)

Main schema Detections.v1_2.xsd

Namespace	http://tethys.sdsu.edu/schema/1.0
Properties	attribute form default: unqualified element form default: unqualified

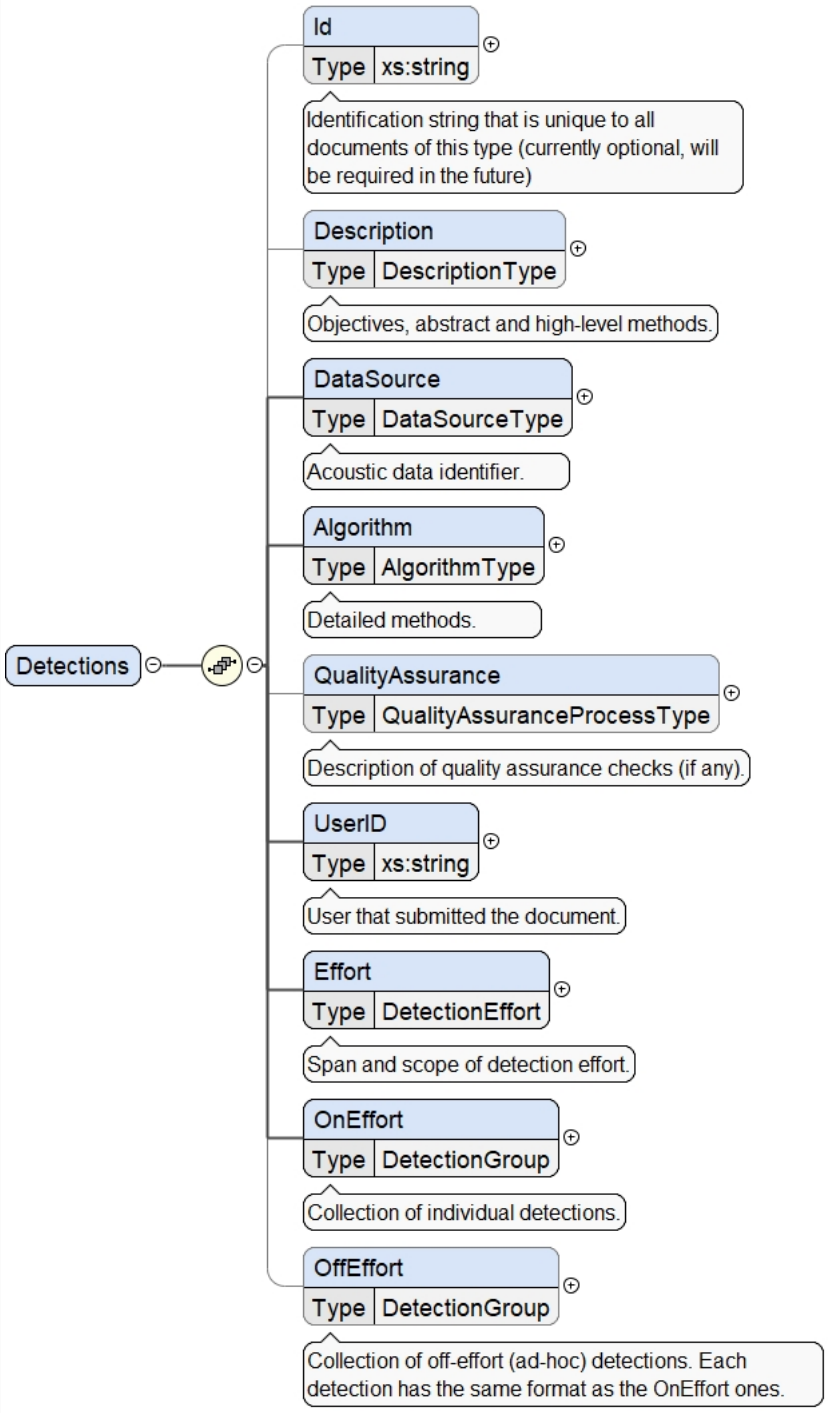
Included schema CommonElements.xsd

Namespace	http://tethys.sdsu.edu/schema/1.0
Properties	attribute form default: unqualified element form default: unqualified

Element(s)

Element Detections

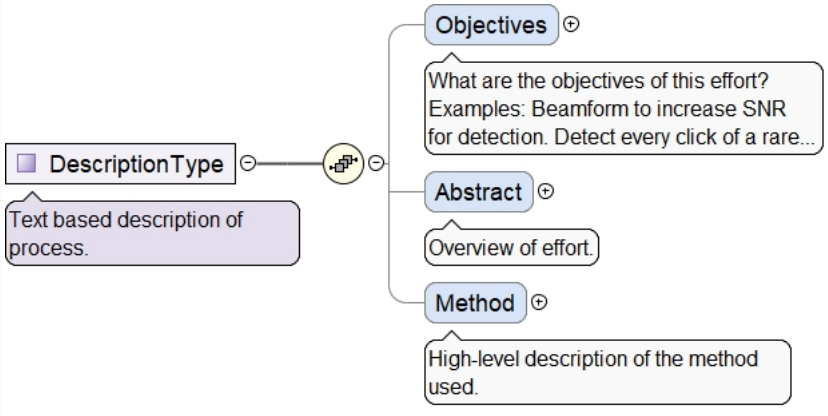
Namespace	http://tethys.sdsu.edu/schema/1.0

Diagram	
Properties	content: complex
Model	Id{0,1} , Description{0,1} , DataSource , Algorithm , QualityAssurance{0,1} , UserID , Effort , OnEffort , OffEffort{0,1}
Children	Algorithm, DataSource, Description, Effort, Id, OffEffort, OnEffort, QualityAssurance, UserID
Instance	<Detections xmlns="http://tethys.sdsu.edu/schema/1.0"> <Id>{0,1}</Id> <Description>{0,1}</Description> <DataSource>{1,1}</DataSource> <Algorithm>{1,1}</Algorithm> <QualityAssurance>{0,1}</QualityAssurance> <UserID>{1,1}</UserID> <Effort>{1,1}</Effort> <OnEffort>{1,1}</OnEffort> <OffEffort>{0,1}</OffEffort> </Detections>
Source	<xs:element name="Detections">

```
 <xs:complexType>
   <xs:sequence>
     <xs:element name="Id" type="xs:string" minOccurs="0">
       <xs:annotation>
         <xs:documentation>Identification string that is unique to all documents of this type
(currently optional, will be required in the future)</xs:documentation>
       </xs:annotation>
     </xs:element>
     <xs:element name="Description" type="DescriptionType" minOccurs="0">
       <xs:annotation>
         <xs:documentation>Objectives, abstract and high-level methods.</xs:documentation>
       </xs:annotation>
     </xs:element>
     <xs:element name="DataSource" type="DataSourceType">
       <xs:annotation>
         <xs:documentation>Acoustic data identifier.</xs:documentation>
       </xs:annotation>
     </xs:element>
     <xs:element name="Algorithm" type="AlgorithmType">
       <xs:annotation>
         <xs:documentation>Detailed methods.</xs:documentation>
       </xs:annotation>
     </xs:element>
     <xs:element minOccurs="0" name="QualityAssurance" type="QualityAssuranceProcessType">
       <xs:annotation>
         <xs:documentation>Description of quality assurance checks (if any).</xs:documentation>
       </xs:annotation>
     </xs:element>
     <xs:element name="UserID" type="xs:string">
       <xs:annotation>
         <xs:documentation>User that submitted the document.</xs:documentation>
       </xs:annotation>
     </xs:element>
     <xs:element name="Effort" maxOccurs="1" type="DetectionEffort">
       <xs:annotation>
         <xs:documentation>Span and scope of detection effort.</xs:documentation>
       </xs:annotation>
     </xs:element>
     <xs:element name="OnEffort" type="DetectionGroup">
       <xs:annotation>
         <xs:documentation>Collection of individual detections.</xs:documentation>
       </xs:annotation>
     </xs:element>
     <xs:element name="OffEffort" minOccurs="0" type="DetectionGroup">
       <xs:annotation>
         <xs:documentation>Collection of off-effort (ad-hoc) detections. Each detection has the
same format as the OnEffort ones.</xs:documentation>
       </xs:annotation>
     </xs:element>
   </xs:sequence>
 </xs:complexType>
</xs:element>
```

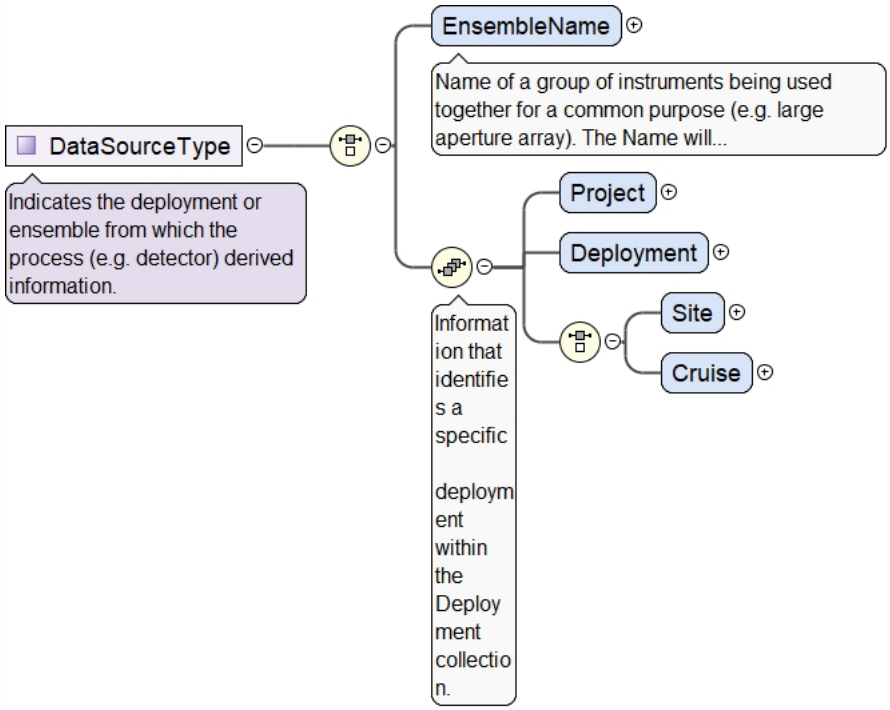
Complex Type(s)

Complex Type `ns1:DescriptionType`

Namespace	http://tethys.sdsu.edu/schema/1.0
Annotations	Text based description of process.
Diagram	
Used by	Elements Detections/Description, ns1:QualityAssuranceProcessType/Description	

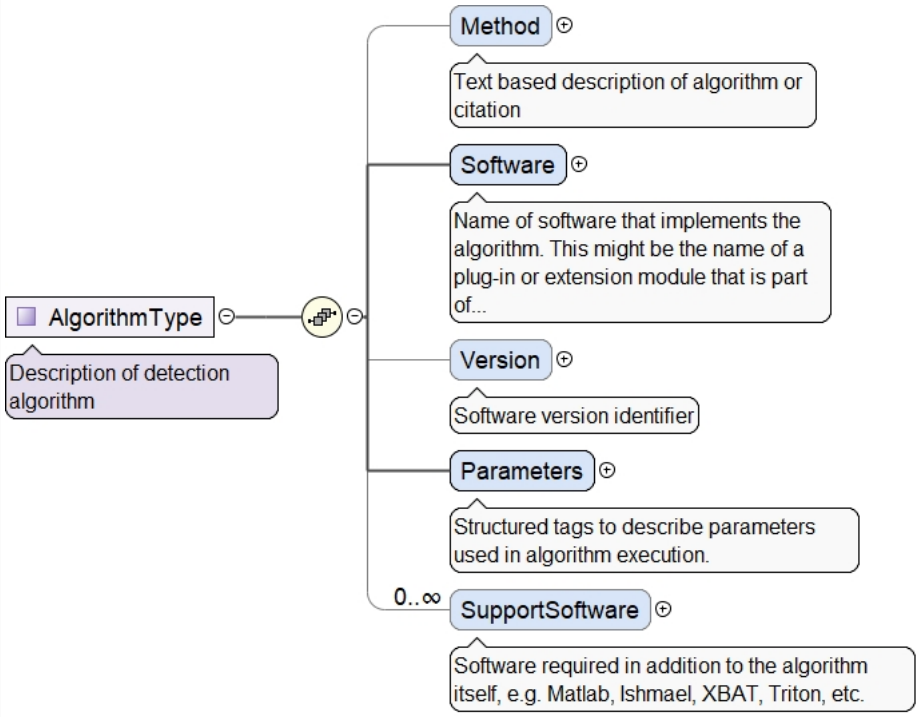
Model	Objectives{0,1} , Abstract{0,1} , Method{0,1}
Children	Abstract, Method, Objectives
Source	<xs:complexType name="DescriptionType"> <xs:annotation> <xs:documentation>Text based description of process.</xs:documentation> </xs:annotation> <xs:sequence> <xs:element name="Objectives" type="xs:string" minOccurs="0"> <xs:annotation> <xs:documentation>What are the objectives of this effort? Examples: Beamform to increase SNR for detection. Detect every click of a rare species. Verify data quality.</xs:documentation> </xs:annotation> </xs:element> <xs:element name="Abstract" type="xs:string" minOccurs="0"> <xs:annotation> <xs:documentation>Overview of effort.</xs:documentation> </xs:annotation> </xs:element> <xs:element name="Method" type="xs:string" minOccurs="0"> <xs:annotation> <xs:documentation>High-level description of the method used.</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:complexType>

Complex Type ns1:DataSourceType

Namespace	http://tethys.sdsu.edu/schema/1.0
Annotations	Indicates the deployment or ensemble from which the process (e.g. detector) derived information.
Diagram	
Used by	Element Detections/DataSource
Model	EnsembleName | (Project , Deployment , (Site | Cruise))
Children	Cruise, Deployment, EnsembleName, Project, Site
Source	<xs:complexType name="DataSourceType"> <xs:annotation> <xs:documentation>Indicates the deployment or ensemble from which the process (e.g. detector) derived information.</xs:documentation> </xs:annotation> <xs:choice> <xs:element name="EnsembleName" type="xs:string"> <xs:annotation> <xs:documentation>Name of a group of instruments being used together for a common purpose (e.g. large aperture array). The Name will correspond to an instance in the Ensemble collection.</xs:documentation>

```
      </xs:annotation>
    </xs:element>
    <xs:sequence>
      <xs:annotation>
        <xs:documentation>Information that identifies a specific deployment within the Deployment
 collection.</xs:documentation>
      </xs:annotation>
      <xs:element name="Project" type="xs:string"/>
      <xs:element name="Deployment" type="xs:integer"/>
      <xs:choice>
        <xs:element name="Site" type="xs:string"/>
        <xs:element name="Cruise" type="xs:string"/>
      </xs:choice>
    </xs:sequence>
  </xs:choice>
</xs:complexType>
```

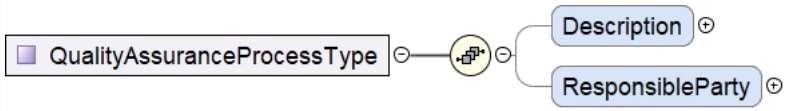
Complex Type `ns1:AlgorithmType`

Namespace	http://tethys.sdsu.edu/schema/1.0
Annotations	`Description of detection algorithm`
Diagram	
Used by	Element Detections/Algorithm
Model	Method{0,1} , Software , Version{0,1} , Parameters , SupportSoftware*
Children	Method, Parameters, Software, SupportSoftware, Version
Source	

```
<xs:complexType name="AlgorithmType">
  <xs:annotation>
    <xs:documentation>Description of detection algorithm</xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element minOccurs="0" name="Method" type="xs:string">
      <xs:annotation>
        <xs:documentation>Text based description of algorithm or citation</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="Software" type="xs:string">
      <xs:annotation>
        <xs:documentation>Name of software that implements the algorithm. This might be the name of
 a plug-in or extension module that is part of a larger program or system.</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="Version" type="xs:string" minOccurs="0">
      <xs:annotation>
        <xs:documentation>Software version identifier</xs:documentation>
      </xs:annotation>
    </xs:element>
```

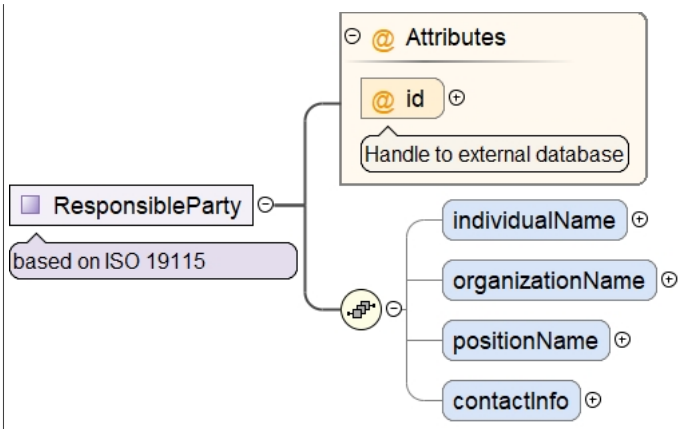
```
    <xs:element name="Parameters">
      <xs:annotation>
        <xs:documentation>Structured tags to describe parameters used in algorithm execution.</
xs:documentation>
      </xs:annotation>
      <xs:complexType>
        <xs:sequence>
          <xs:any maxOccurs="unbounded" minOccurs="0" namespace="##any" processContents="skip"/>
        </xs:sequence>
      </xs:complexType>
    </xs:element>
    <xs:element name="SupportSoftware" maxOccurs="unbounded" minOccurs="0">
      <xs:annotation>
        <xs:documentation>Software required in addition to the algorithm itself, e.g. Matlab,
 Ishmael, XBAT, Triton, etc.</xs:documentation>
      </xs:annotation>
      <xs:complexType>
        <xs:sequence>
          <xs:element name="Software" type="xs:string"/>
          <xs:element name="Version" type="xs:string" minOccurs="0"/>
          <xs:element name="Parameters" minOccurs="0">
            <xs:annotation>
              <xs:documentation>Structured tags to describe parameters used in algorithm
 execution.</xs:documentation>
            </xs:annotation>
            <xs:complexType>
              <xs:sequence>
                <xs:any maxOccurs="unbounded" minOccurs="0" namespace="##any"
 processContents="skip"/>
              </xs:sequence>
            </xs:complexType>
          </xs:element>
        </xs:sequence>
      </xs:complexType>
    </xs:element>
  </xs:sequence>
</xs:complexType>
```

Complex Type `ns1:QualityAssuranceProcessType`

Namespace	http://tethys.sdsu.edu/schema/1.0
Diagram	
Used by	Element Detections/QualityAssurance
Model	Description{0,1} , ResponsibleParty{0,1}
Children	Description, ResponsibleParty
Source	<xs:complexType name="QualityAssuranceProcessType"> <xs:sequence> <xs:element name="Description" type="ns1:DescriptionType" minOccurs="0"/> <xs:element name="ResponsibleParty" type="ns1:ResponsibleParty" minOccurs="0"/> </xs:sequence> </xs:complexType>

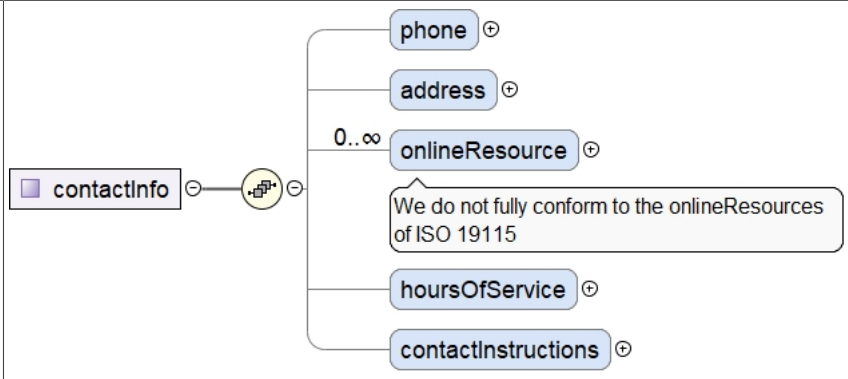
Complex Type `ns1:ResponsibleParty`

Namespace	http://tethys.sdsu.edu/schema/1.0
Annotations	based on ISO 19115

Diagram	
Used by	Elements ns1:ContactGroup/ResponsibleParty, ns1:QualityAssuranceProcessType/ResponsibleParty
Model	individualName{0,1} , organizationName{0,1} , positionName{0,1} , contactInfo{0,1}
Children	contactInfo, individualName, organizationName, positionName
Attributes	**QName** / **Type** / **Use** **id** / xs:NCName / optional Handle to external database

Source	`<xs:complexType name="ResponsibleParty">`
	`  <xs:annotation>`
	`  <xs:documentation>based on ISO 19115</xs:documentation>`
	`  </xs:annotation>`
	`  <xs:sequence>`
	`  <xs:element minOccurs="0" name="individualName" type="xs:string"/>`
	`  <xs:element minOccurs="0" name="organizationName" type="xs:string"/>`
	`  <xs:element minOccurs="0" name="positionName" type="xs:string"/>`
	`  <xs:element minOccurs="0" name="contactInfo" type="ns1:contactInfo"/>`
	`  </xs:sequence>`
	`  <xs:attribute name="id" type="xs:NCName">`
	`  <xs:annotation>`
	`  <xs:documentation>Handle to external database</xs:documentation>`
	`  </xs:annotation>`
	`  </xs:attribute>`
	`</xs:complexType>`

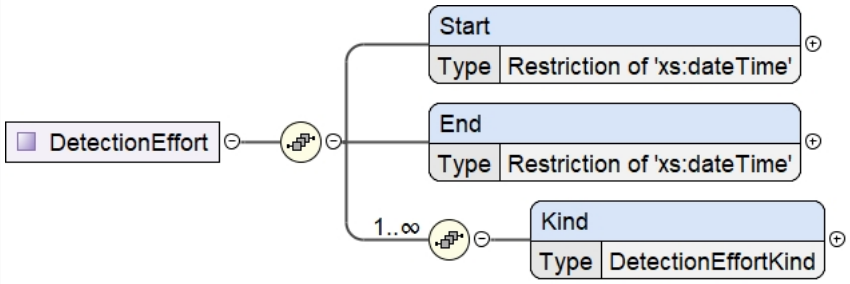
Complex Type `ns1:contactInfo`

Namespace	http://tethys.sdsu.edu/schema/1.0
Diagram	
Used by	Element ns1:ResponsibleParty/contactInfo
Model	phone{0,1} , address{0,1} , onlineResource* , hoursOfService{0,1} , contactInstructions{0,1}
Children	address, contactInstructions, hoursOfService, onlineResource, phone

Source	`<xs:complexType name="contactInfo">`
	`  <xs:sequence>`
	`  <xs:element minOccurs="0" name="phone">`
	`  <xs:complexType>`
	`  <xs:sequence>`
	`  <xs:element maxOccurs="unbounded" minOccurs="0" name="voice" type="xs:string"/>`
	`  <xs:element maxOccurs="unbounded" minOccurs="0" name="facsimile" type="xs:string"/>`

```
        </xs:sequence>
      </xs:complexType>
    </xs:element>
    <xs:element minOccurs="0" name="address">
      <xs:complexType>
        <xs:sequence>
          <xs:element maxOccurs="unbounded" minOccurs="0" name="deliveryPoint" type="xs:string"/>
          <xs:element minOccurs="0" name="city" type="xs:string"/>
          <xs:element minOccurs="0" name="administrativeArea" type="xs:string"/>
          <xs:element minOccurs="0" name="postalCode" type="xs:string"/>
          <xs:element minOccurs="0" name="country" type="xs:string"/>
          <xs:element minOccurs="0" name="electronicMailAddress" type="xs:string"/>
        </xs:sequence>
      </xs:complexType>
    </xs:element>
    <xs:element maxOccurs="unbounded" minOccurs="0" name="onlineResource">
      <xs:annotation>
        <xs:documentation>We do not fully conform to the onlineResources of ISO 19115</
xs:documentation>
      </xs:annotation>
      <xs:complexType>
        <xs:anyAttribute namespace="##any"/>
      </xs:complexType>
    </xs:element>
    <xs:element minOccurs="0" name="hoursOfService" type="xs:string"/>
    <xs:element minOccurs="0" name="contactInstructions" type="xs:string"/>
  </xs:sequence>
</xs:complexType>
```

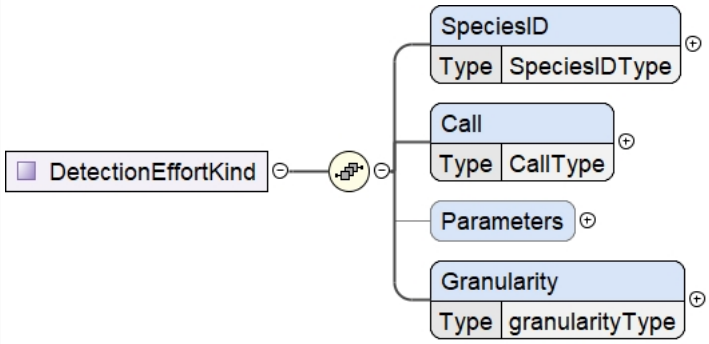
Complex Type `DetectionEffort`

Namespace	http://tethys.sdsu.edu/schema/1.0
Diagram	
Used by	Element Detections/Effort
Model	Start , End , Kind
Children	End, Kind, Start
Source	

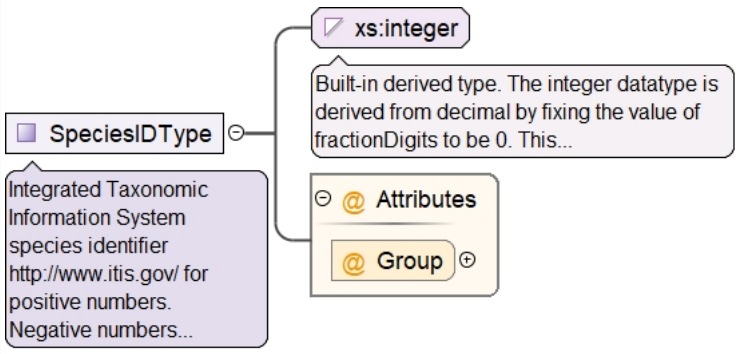
```
<xs:complexType name="DetectionEffort">
  <xs:sequence>
    <xs:element name="Start">
      <xs:simpleType>
        <xs:restriction base="xs:dateTime">
          <xs:whiteSpace value="collapse"/>
        </xs:restriction>
      </xs:simpleType>
    </xs:element>
    <xs:element name="End">
      <xs:simpleType>
        <xs:restriction base="xs:dateTime">
          <xs:whiteSpace value="collapse"/>
        </xs:restriction>
      </xs:simpleType>
    </xs:element>
    <xs:sequence maxOccurs="unbounded">
      <xs:element name="Kind" type="DetectionEffortKind">
      </xs:element>
    </xs:sequence>
  </xs:sequence>
</xs:complexType>
```

Complex Type `DetectionEffortKind`

Namespace	http://tethys.sdsu.edu/schema/1.0

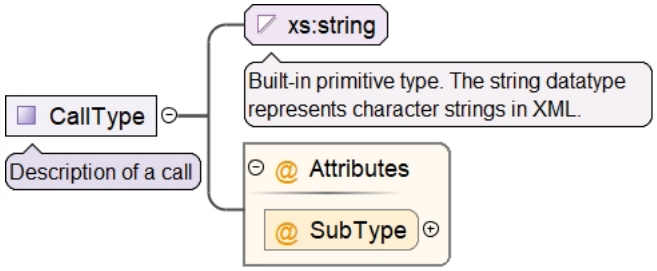
Diagram	
Used by	Element DetectionEffort/Kind
Model	SpeciesID , Call , Parameters{0,1} , Granularity
Children	Call, Granularity, Parameters, SpeciesID
Source	<xs:complexType name="DetectionEffortKind"> <xs:sequence maxOccurs="1"> <xs:element name="SpeciesID" type="SpeciesIDType"/> <xs:element name="Call" type="CallType"/> <xs:element minOccurs="0" name="Parameters"> <xs:complexType> <xs:sequence> <xs:element minOccurs="0" name="Subtype" type="xs:string"> <xs:annotation> <xs:documentation>subcategory of call</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:complexType> </xs:element> <xs:element name="Granularity" type="granularityType"/> </xs:sequence> </xs:complexType>

Complex Type ns1:SpeciesIDType

Namespace	http://tethys.sdsu.edu/schema/1.0
Annotations	Integrated Taxonomic Information System species identifier http://www.itis.gov/ for positive numbers. Negative numbers are interpreted by collection("phenomena").
Diagram	
Type	extension of xs:integer
Used by	Elements Detection/SpeciesID, DetectionEffortKind/SpeciesID, OffEffortDetection/SpeciesID
Attributes	**QName** | **Type** | **Use** **Group** | xs:string | optional
Source	<xs:complexType name="SpeciesIDType"> <xs:annotation> <xs:documentation>Integrated Taxonomic Information System species identifier http:// www.itis.gov/ for positive numbers. Negative numbers are interpreted by collection("phenomena").</ xs:documentation> </xs:annotation> <xs:simpleContent> <xs:extension base="xs:integer"> <xs:attribute name="Group" type="xs:string"/> </xs:extension>

```
  </xs:simpleContent>
</xs:complexType>
```

Complex Type `ns1:CallType`

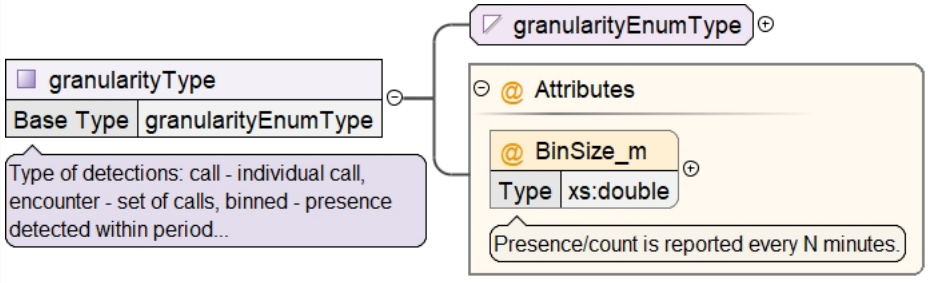
Namespace	http://tethys.sdsu.edu/schema/1.0
Annotations	`Description of a call`
Diagram	
Type	extension of xs:string
Used by	Elements Detection/Call, DetectionEffortKind/Call, OffEffortDetection/Call
Attributes	**QName** | **Type** | **Use** **SubType** | xs:string | optional

Source	`<xs:complexType name="CallType">`
	`  <xs:annotation>`
	`  <xs:documentation>Description of a call</xs:documentation>`
	`  </xs:annotation>`
	`  <xs:simpleContent>`
	`  <xs:extension base="xs:string">`
	`  <xs:annotation>`
	`  <xs:documentation>Call name</xs:documentation>`
	`  </xs:annotation>`
	`  <xs:attribute name="SubType" type="xs:string"/>`
	`  </xs:extension>`
	`  </xs:simpleContent>`
	`</xs:complexType>`

Complex Type `granularityType`

Namespace	http://tethys.sdsu.edu/schema/1.0

Annotations	`Type of detections:`
	`call - individual call,`
	`encounter - set of calls,`
	`binned - presence detected within period specified by bin size attribute in Effort.`

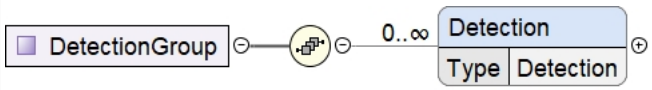
Diagram	
Type	extension of granularityEnumType

Type hierarchy	• xs:string
	  • granularityEnumType
	  • granularityType

Used by	Element DetectionEffortKind/Granularity
Attributes	**QName** | **Type** | **Use** **BinSize_m** | xs:double | optional `Presence/count is reported every N minutes.`
Source	`<xs:complexType name="granularityType">` `  <xs:annotation>`

```
    <xs:documentation>Type of detections: call - individual call, encounter - set of calls, binned -
 presence detected within period specified by bin size attribute in Effort.</xs:documentation>
  </xs:annotation>
  <xs:simpleContent>
    <xs:annotation>
      <xs:documentation>On what scale are detections made? See granularityEnumType. Binned data
 spans are relative to midnight on the start of effort date and are of timespan binsize_m.</
xs:documentation>
    </xs:annotation>
    <xs:extension base="granularityEnumType">
      <xs:attribute name="BinSize_m" type="xs:double">
        <xs:annotation>
          <xs:documentation>Presence/count is reported every N minutes.</xs:documentation>
        </xs:annotation>
      </xs:attribute>
    </xs:extension>
  </xs:simpleContent>
</xs:complexType>
```

Complex Type `DetectionGroup`

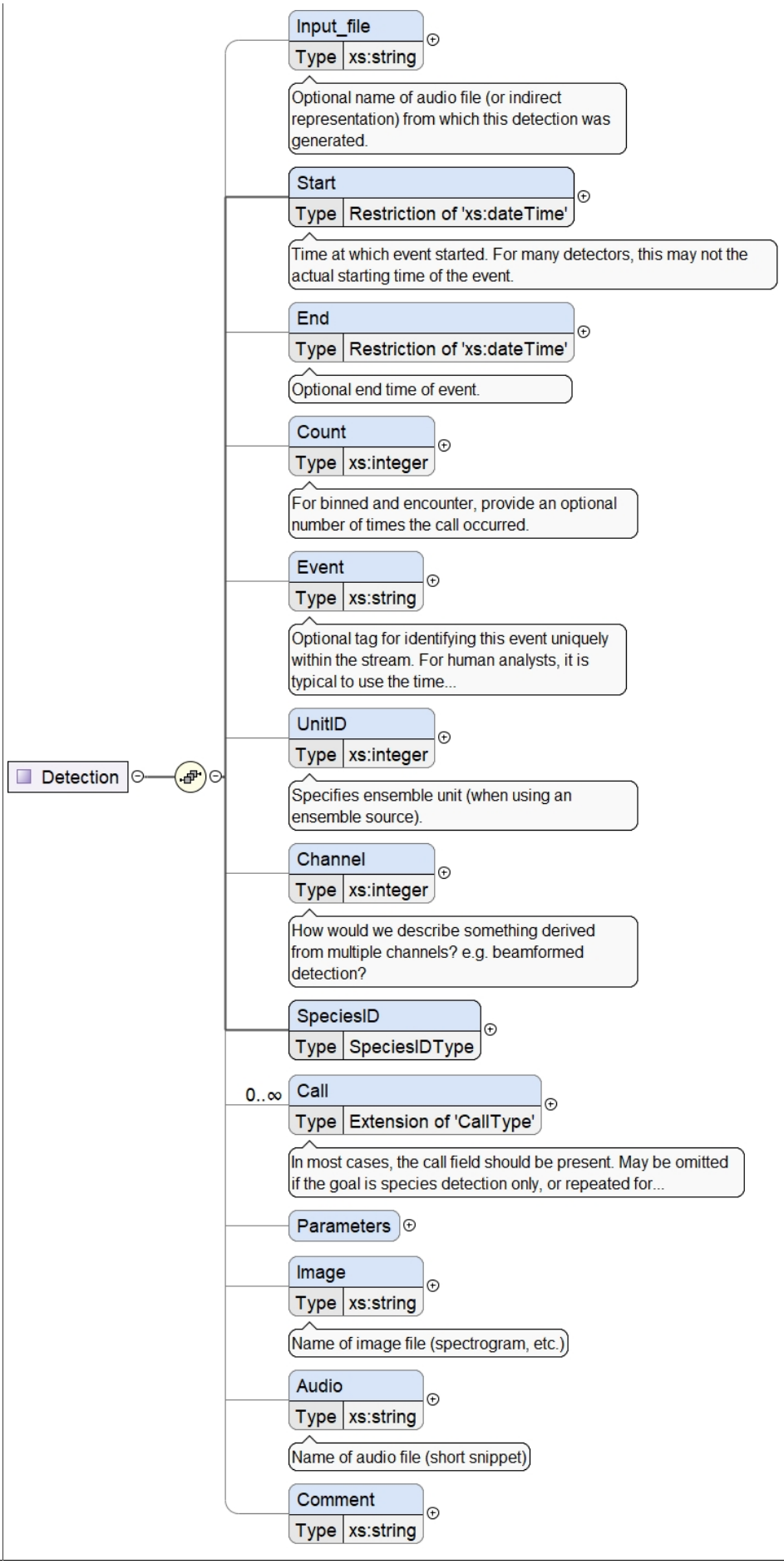
Namespace	http://tethys.sdsu.edu/schema/1.0
Diagram	
Used by	Elements Detections/OffEffort, Detections/OnEffort
Model	Detection*
Children	Detection

Source	`<xs:complexType name="DetectionGroup">`
	`  <xs:sequence>`
	`  <xs:element name="Detection" minOccurs="0" maxOccurs="unbounded" type="Detection"/>`
	`  </xs:sequence>`
	`</xs:complexType>`

Complex Type `Detection`

Namespace	http://tethys.sdsu.edu/schema/1.0

Diagram


Detection
Input_file
Type xs:string
Optional name of audio file (or indirect representation) from which this detection was generated.
Start
Type Restriction of 'xs:dateTime'
Time at which event started. For many detectors, this may not the actual starting time of the event.
End
Type Restriction of 'xs:dateTime'
Optional end time of event.
Count
Type xs:integer
For binned and encounter, provide an optional number of times the call occurred.
Event
Type xs:string
Optional tag for identifying this event uniquely within the stream. For human analysts, it is typical to use the time...
UnitID
Type xs:integer
Specifies ensemble unit (when using an ensemble source).
Channel
Type xs:integer
How would we describe something derived from multiple channels? e.g. beamformed detection?
SpeciesID
Type SpeciesIDType
0..∞
Call
Type Extension of 'CallType'
In most cases, the call field should be present. May be omitted if the goal is species detection only, or repeated for...
Parameters
Image
Type xs:string
Name of image file (spectrogram, etc.)
Audio
Type xs:string
Name of audio file (short snippet)
Comment
Type xs:string

Used by	Element DetectionGroup/Detection
Model	Input_file{0,1} , Start , End{0,1} , Count{0,1} , Event{0,1} , UnitID{0,1} , Channel{0,1} , SpeciesID , Call* , Parameters{0,1} , Image{0,1} , Audio{0,1} , Comment{0,1}
Children	Audio, Call, Channel, Comment, Count, End, Event, Image, Input_file, Parameters, SpeciesID, Start, UnitID
Source	

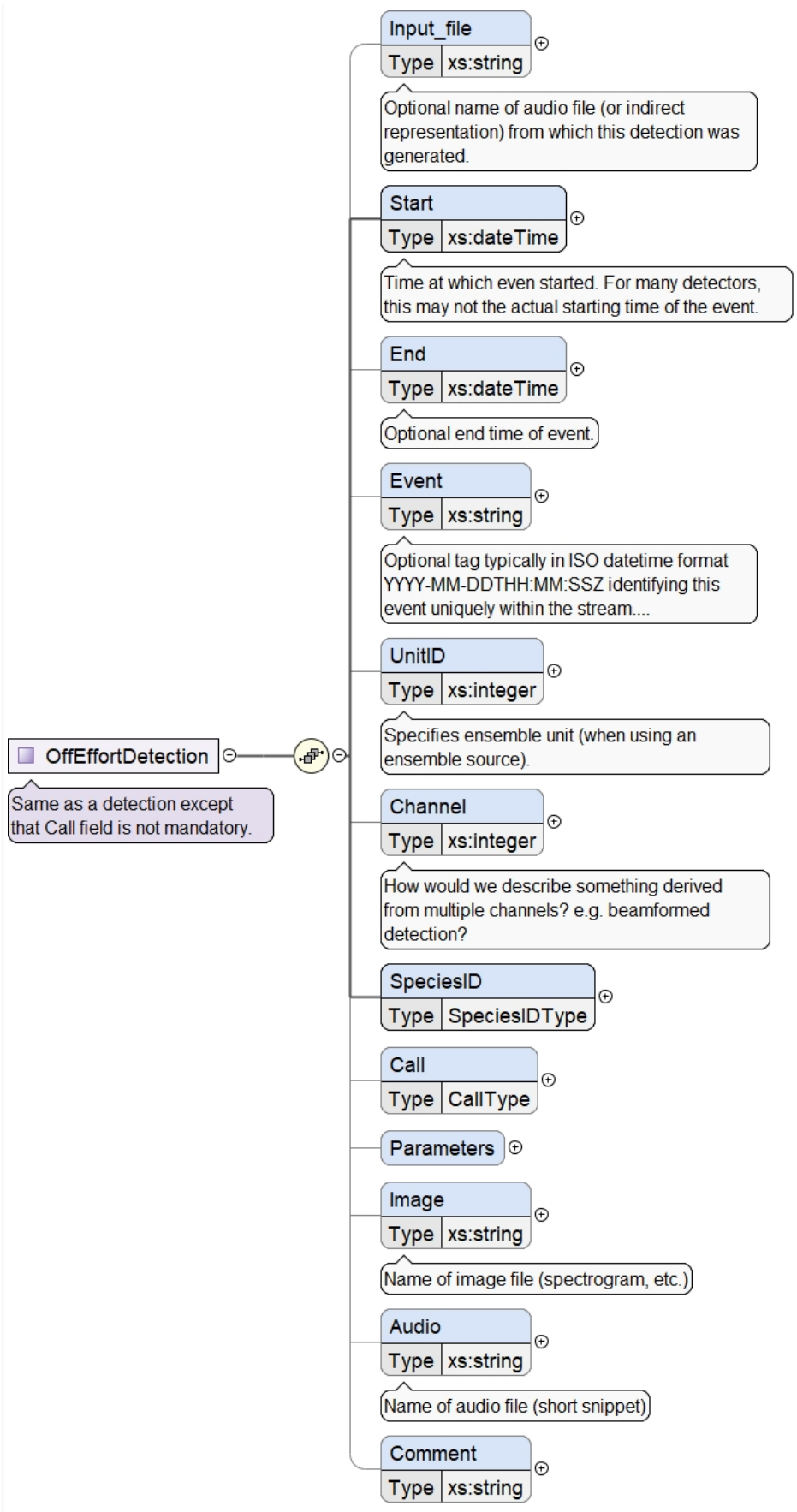
```
<xs:complexType name="Detection">
  <xs:sequence>
    <xs:element name="Input_file" type="xs:string" minOccurs="0">
      <xs:annotation>
        <xs:documentation>Optional name of audio file (or indirect representation) from which this
 detection was generated.</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="Start">
      <xs:annotation>
        <xs:documentation>Time at which event started. For many detectors, this may not the actual
 starting time of the event.</xs:documentation>
      </xs:annotation>
      <xs:simpleType>
        <xs:restriction base="xs:dateTime">
          <xs:whiteSpace value="collapse"/>
        </xs:restriction>
      </xs:simpleType>
    </xs:element>
    <xs:element name="End" minOccurs="0">
      <xs:annotation>
        <xs:documentation>Optional end time of event.</xs:documentation>
      </xs:annotation>
      <xs:simpleType>
        <xs:restriction base="xs:dateTime">
          <xs:whiteSpace value="collapse"/>
        </xs:restriction>
      </xs:simpleType>
    </xs:element>
    <xs:element minOccurs="0" name="Count" type="xs:integer">
      <xs:annotation>
        <xs:documentation>For binned and encounter, provide an optional number of times the call
 occurred.</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="Event" minOccurs="0" type="xs:string">
      <xs:annotation>
        <xs:documentation>Optional tag for identifying this event uniquely within the stream. For
 human analysts, it is typical to use the time at which the detection was made in ISO 8601 format
 (YYYY-MM-DDTHH:MM:SSZ). When present, the combination of the event and attributes that uniquely
 identify the set of detections (or document name) must be uniqe.</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element minOccurs="0" name="UnitID" type="xs:integer">
      <xs:annotation>
        <xs:documentation>Specifies ensemble unit (when using an ensemble source).</
xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="Channel" type="xs:integer" minOccurs="0">
      <xs:annotation>
        <xs:documentation>How would we describe something derived from multiple channels? e.g.
 beamformed detection?</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="SpeciesID" type="SpeciesIDType"/>
    <xs:element name="Call" maxOccurs="unbounded" minOccurs="0">
      <xs:annotation>
        <xs:documentation>In most cases, the call field should be present. May be omitted if the
 goal is species detection only, or repeated for multiple types of calls when the granularity effort
 is not "call".</xs:documentation>
      </xs:annotation>
      <xs:complexType>
        <xs:complexContent>
          <xs:extension base="CallType">
            <xs:attribute name="Count" type="xs:int">
              <xs:annotation>
                <xs:documentation>For binned and encounter level detections, may be used to denote
 the count of a particular call type.</xs:documentation>
              </xs:annotation>
            </xs:attribute>
          </xs:extension>
        </xs:complexContent>
      </xs:complexType>
    </xs:element>
    <xs:element minOccurs="0" name="Parameters">
```

```
      <xs:complexType>
        <xs:sequence>
          <xs:element minOccurs="0" name="Subtype" type="xs:string">
            <xs:annotation>
              <xs:documentation>subcategory of call</xs:documentation>
            </xs:annotation>
          </xs:element>
          <xs:element minOccurs="0" name="Score" type="xs:double">
            <xs:annotation>
              <xs:documentation>Measure from detector, e.g. likelihood ratio, projection, etc.</
xs:documentation>
            </xs:annotation>
          </xs:element>
          <xs:element minOccurs="0" name="Confidence">
            <xs:annotation>
              <xs:documentation>Measure of confidence in detection. Range: [0, 1]</xs:documentation>
            </xs:annotation>
            <xs:simpleType>
              <xs:restriction base="xs:double">
                <xs:minInclusive value="0"/>
                <xs:maxInclusive value="1"/>
              </xs:restriction>
            </xs:simpleType>
          </xs:element>
          <xs:element minOccurs="0" name="QualityAssurance">
            <xs:annotation>
              <xs:documentation>Detection is: unverified, valid, invalid</xs:documentation>
            </xs:annotation>
            <xs:simpleType>
              <xs:restriction base="xs:string">
                <xs:enumeration value="unverified"/>
                <xs:enumeration value="valid"/>
                <xs:enumeration value="invalid"/>
              </xs:restriction>
            </xs:simpleType>
          </xs:element>
          <xs:element name="ReceivedLevel_dB" type="xs:double" minOccurs="0">
            <xs:annotation>
              <xs:documentation>dB re 1 µPa</xs:documentation>
            </xs:annotation>
          </xs:element>
          <xs:element minOccurs="0" name="MinFreq_Hz" type="xs:double"/>
          <xs:element minOccurs="0" name="MaxFreq_Hz" type="xs:double"/>
          <xs:element name="PeakFreq_Hz" type="xs:double" minOccurs="0"/>
          <xs:element name="Peaks_Hz" minOccurs="0">
            <xs:annotation>
              <xs:documentation>Typically used for spectra of short echolocation bursts, notes the
 spectral peaks in a list sorted from low to high frequency.</xs:documentation>
            </xs:annotation>
            <xs:simpleType>
              <xs:list itemType="xs:double"/>
            </xs:simpleType>
          </xs:element>
          <xs:element minOccurs="0" name="Duration_s" type="xs:double">
            <xs:annotation>
              <xs:documentation>When the call granularity is binned or encounter, this may be used
 to describe the mean duration of calls during the bout. As an example, at SIO we use this to track
 the mean duration of binned anthropogenic sources such as explosions.</xs:documentation>
            </xs:annotation>
          </xs:element>
          <xs:element name="Sideband_Hz" minOccurs="0">
            <xs:annotation>
              <xs:documentation>Signal sideband frequencies in a list sorted from low to high
 frequency.</xs:documentation>
            </xs:annotation>
            <xs:simpleType>
              <xs:list itemType="xs:double"/>
            </xs:simpleType>
          </xs:element>
          <xs:element maxOccurs="unbounded" minOccurs="0" name="EventRef" type="EventType">
            <xs:annotation>
              <xs:documentation>Reference to other detections for hierarchical organization.</
xs:documentation>
            </xs:annotation>
          </xs:element>
          <xs:element minOccurs="0" name="UserDefined">
            <xs:annotation>
              <xs:documentation>Study specific parameters</xs:documentation>
            </xs:annotation>
            <xs:complexType>
              <xs:sequence maxOccurs="unbounded" minOccurs="0">
                <xs:any namespace="##any" minOccurs="0" processContents="skip"/>
              </xs:sequence>
```

```
            </xs:complexType>
          </xs:element>
        </xs:sequence>
      </xs:complexType>
    </xs:element>
    <xs:element minOccurs="0" name="Image" type="xs:string">
      <xs:annotation>
        <xs:documentation>Name of image file (spectrogram, etc.)</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element minOccurs="0" name="Audio" type="xs:string">
      <xs:annotation>
        <xs:documentation>Name of audio file (short snippet)</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element minOccurs="0" name="Comment" type="xs:string"/>
  </xs:sequence>
</xs:complexType>
```

Complex Type `OffEffortDetection`

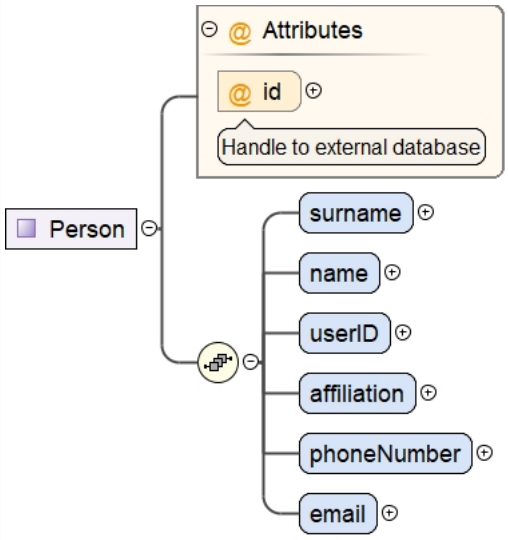
Namespace	http://tethys.sdsu.edu/schema/1.0
Annotations	`Same as a detection except that Call field is not mandatory.`

Diagram	
Model	Input_file{0,1} , Start , End{0,1} , Event{0,1} , UnitID{0,1} , Channel{0,1} , SpeciesID , Call{0,1} , Parameters{0,1} , Image{0,1} , Audio{0,1} , Comment{0,1}

Children	Audio, Call, Channel, Comment, End, Event, Image, Input_file, Parameters, SpeciesID, Start, UnitID
Source	<xs:complexType name="OffEffortDetection"> <xs:annotation> <xs:documentation>Same as a detection except that Call field is not mandatory.</xs:documentation> </xs:annotation> <xs:sequence> <xs:element name="Input_file" type="xs:string" minOccurs="0"> <xs:annotation> <xs:documentation>Optional name of audio file (or indirect representation) from which this detection was generated.</xs:documentation> </xs:annotation> </xs:element> <xs:element name="Start" type="xs:dateTime"> <xs:annotation> <xs:documentation>Time at which even started. For many detectors, this may not the actual starting time of the event.</xs:documentation> </xs:annotation> </xs:element> <xs:element name="End" type="xs:dateTime" minOccurs="0"> <xs:annotation> <xs:documentation>Optional end time of event.</xs:documentation> </xs:annotation> </xs:element> <xs:element name="Event" minOccurs="0" type="xs:string"> <xs:annotation> <xs:documentation>Optional tag typically in ISO datetime format YYYY-MM-DDTHH:MM:SSZ identifying this event uniquely within the stream. For human analysts, it is typical to use the time at which the detection was made. When present, the combination of the event and attributes that uniquely identify the set of detections (or document name) must be uniqe.</xs:documentation> </xs:annotation> </xs:element> <xs:element minOccurs="0" name="UnitID" type="xs:integer"> <xs:annotation> <xs:documentation>Specifies ensemble unit (when using an ensemble source).</xs:documentation> </xs:annotation> </xs:element> <xs:element name="Channel" type="xs:integer" minOccurs="0"> <xs:annotation> <xs:documentation>How would we describe something derived from multiple channels? e.g. beamformed detection?</xs:documentation> </xs:annotation> </xs:element> <xs:element name="SpeciesID" type="SpeciesIDType"/> <xs:element name="Call" type="CallType" minOccurs="0"/> <xs:element minOccurs="0" name="Parameters"> <xs:complexType> <xs:sequence> <xs:element minOccurs="0" name="Subtype" type="xs:string"> <xs:annotation> <xs:documentation>subcategory of call</xs:documentation> </xs:annotation> </xs:element> <xs:element name="ReceivedLevel_dB" type="xs:double" minOccurs="0"> <xs:annotation> <xs:documentation>dB re 1 µPa</xs:documentation> </xs:annotation> </xs:element> <xs:element minOccurs="0" name="MinFreq_Hz" type="xs:double"/> <xs:element minOccurs="0" name="MaxFreq_Hz" type="xs:double"/> <xs:element name="PeakFreq_Hz" type="xs:double" minOccurs="0"/> <xs:element name="Peaks_Hz" minOccurs="0"> <xs:annotation> <xs:documentation>Typically used for spectra of short echolocation bursts, notes the spectral peaks in a list sorted from low to high frequency.</xs:documentation> </xs:annotation> <xs:simpleType> <xs:list itemType="xs:double"/> </xs:simpleType> </xs:element> <xs:element minOccurs="0" name="Duration_s" type="xs:double"> <xs:annotation> <xs:documentation>When the call granularity is binned or bout, this may be used to describe the mean duration of calls during the bout. As an example, at SIO we use this to track the mean duration of binned anthropogenic sources such as explosions.</xs:documentation> </xs:annotation> </xs:element> <xs:element name="Sideband_Hz" minOccurs="0"> <xs:annotation> <xs:documentation>Signal sideband frequencies in a list sorted from low to high frequency.</xs:documentation>

```
            </xs:annotation>
            <xs:simpleType>
              <xs:list itemType="xs:double"/>
            </xs:simpleType>
          </xs:element>
          <xs:element minOccurs="0" name="UserDefined">
            <xs:annotation>
              <xs:documentation>Suggestions for a better name? We can't just have them appear after
 Sideband_Hz due to restrictions on the XML schema :-(</xs:documentation>
            </xs:annotation>
            <xs:complexType>
              <xs:sequence>
                <xs:any namespace="##any" minOccurs="0" processContents="skip"/>
              </xs:sequence>
            </xs:complexType>
          </xs:element>
        </xs:sequence>
      </xs:complexType>
    </xs:element>
    <xs:element minOccurs="0" name="Image" type="xs:string">
      <xs:annotation>
        <xs:documentation>Name of image file (spectrogram, etc.)</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element minOccurs="0" name="Audio" type="xs:string">
      <xs:annotation>
        <xs:documentation>Name of audio file (short snippet)</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element minOccurs="0" name="Comment" type="xs:string"/>
  </xs:sequence>
</xs:complexType>
```

Complex Type ns1:Person

Namespace	http://tethys.sdsu.edu/schema/1.0
Diagram	
Used by	Element ns1:ContactGroup/Person
Model	surname , name , userID , affiliation , phoneNumber , email
Children	affiliation, email, name, phoneNumber, surname, userID

Attributes

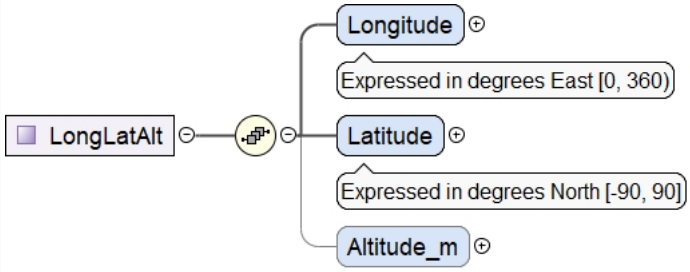
QName	Type	Use	
id	xs:NCName	optional	
	Handle to external database		

Source

```
<xs:complexType name="Person">
  <xs:sequence>
    <xs:element name="surname" type="xs:token"/>
    <xs:element name="name" type="xs:token"/>
    <xs:element name="userID" type="xs:token"/>
    <xs:element name="affiliation" type="xs:token"/>
    <xs:element name="phoneNumber" type="xs:token"/>
    <xs:element name="email" type="xs:token"/>
  </xs:sequence>
```

```
  <xs:attribute name="id" type="xs:NCName">
    <xs:annotation>
      <xs:documentation>Handle to external database</xs:documentation>
    </xs:annotation>
  </xs:attribute>
</xs:complexType>
```

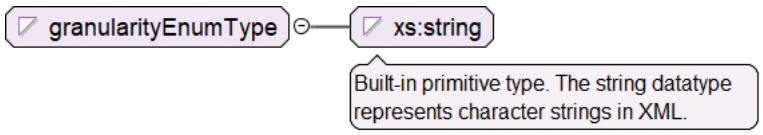
Complex Type `ns1:LongLatAlt`

Namespace	http://tethys.sdsu.edu/schema/1.0
Diagram	
Model	Longitude , Latitude , Altitude_m{0,1}
Children	Altitude_m, Latitude, Longitude

Source	`<xs:complexType name="LongLatAlt">`
	`  <xs:sequence>`
	`  <xs:element name="Longitude" type="xs:double">`
	`  <xs:annotation>`
	`  <xs:documentation>Expressed in degrees East [0, 360)</xs:documentation>`
	`  </xs:annotation>`
	`  </xs:element>`
	`  <xs:element name="Latitude" type="xs:double">`
	`  <xs:annotation>`
	`  <xs:documentation>Expressed in degrees North [-90, 90]</xs:documentation>`
	`  </xs:annotation>`
	`  </xs:element>`
	`  <xs:element name="Altitude_m" type="xs:double" maxOccurs="1" minOccurs="0"/>`
	`  </xs:sequence>`
	`</xs:complexType>`

Simple Type(s)

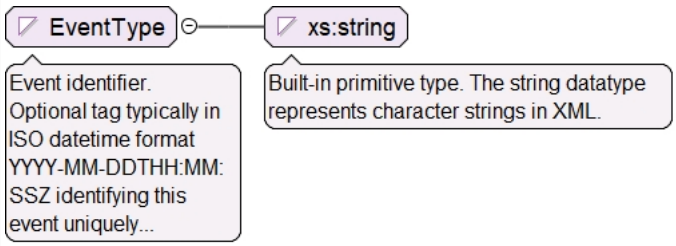
Simple Type `granularityEnumType`

Namespace	http://tethys.sdsu.edu/schema/1.0	
Annotations		
Diagram		
Type	restriction of xs:string	
Facets	whiteSpace	`collapse`
	enumeration	`call`
	enumeration	`encounter`
	enumeration	`binned`
Used by	Complex Type	granularityType

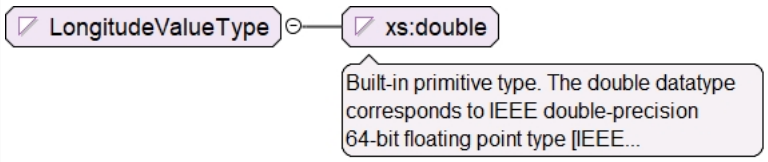
Source	`<xs:simpleType name="granularityEnumType">`
	`  <xs:annotation>`
	`  <xs:documentation/>`
	`  </xs:annotation>`
	`  <xs:restriction base="xs:string">`
	`  <xs:enumeration value="call"/>`
	`  <xs:enumeration value="encounter"/>`
	`  <xs:enumeration value="binned"/>`
	`  <xs:whiteSpace value="collapse"/>`
	`  </xs:restriction>`	

```
</xs:simpleType>
```

Simple Type ns1:EventType

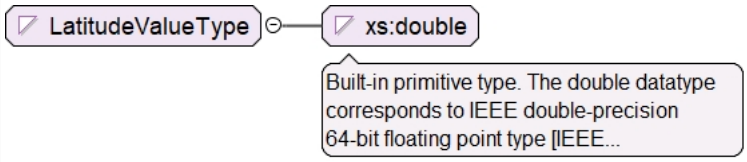
Namespace	http://tethys.sdsu.edu/schema/1.0
Annotations	Event identifier. Optional tag typically in ISO datetime format YYYY-MM-DDTHH:MM:SSZ identifying this event uniquely within the stream (detections, localizations, etc.). For human analysts, it is typical to use the time at which the detection was made. When used, the combination of the event and attributes that uniquely identify the set of detections (or document name) must be unique.
Diagram	
Type	xs:string
Used by	Element Detection/Parameters/EventRef
Source	`<xs:simpleType name="EventType">` `  <xs:annotation>` ` <xs:documentation>Event identifier. Optional tag typically in ISO datetime format YYYY-MM-DDTHH:MM:SSZ identifying this event uniquely within the stream (detections, localizations, etc.). For human analysts, it is typical to use the time at which the detection was made. When used, the combination of the event and attributes that uniquely identify the set of detections (or document name) must be unique.</xs:documentation>` ` </xs:annotation>` ` <xs:restriction base="xs:string"/>` `</xs:simpleType>`

Simple Type ns1:LongitudeValueType

Namespace	http://tethys.sdsu.edu/schema/1.0
Diagram	
Type	restriction of xs:double
Facets	maxExclusive 360 minInclusive 0
Used by	Elements ns1:LongLat/Longitude, ns1:LongLat3/Longitude

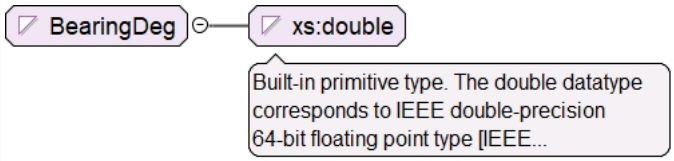
Source	`<xs:simpleType name="LongitudeValueType">`
	`  <xs:restriction base="xs:double">`
	`  <xs:minInclusive value="0"/>`
	`  <xs:maxExclusive value="360"/>`
	`  </xs:restriction>`
	`</xs:simpleType>`

Simple Type ns1:LatitudeValueType

Namespace	http://tethys.sdsu.edu/schema/1.0
Diagram	
Type	restriction of xs:double
Facets	maxInclusive 90

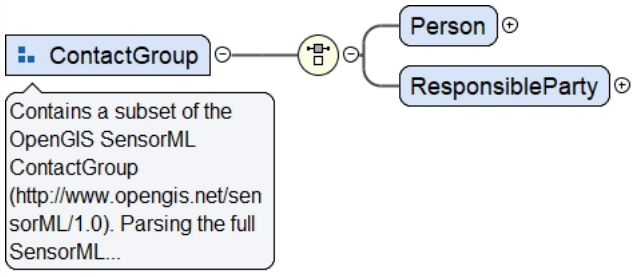
	minInclusive	-90
Used by	Elements	ns1:LongLat/Latitude, ns1:LongLat3/Latitude
Source	<xs:simpleType name="LatitudeValueType"> <xs:restriction base="xs:double"> <xs:minInclusive value="-90"/> <xs:maxInclusive value="90"/> </xs:restriction> </xs:simpleType>	

Simple Type ns1:BearingDeg

Namespace	http://tethys.sdsu.edu/schema/1.0
Diagram	
Type	restriction of xs:double
Facets	maxExclusive 360 minInclusive 0
Source	<xs:simpleType name="BearingDeg"> <xs:restriction base="xs:double"> <xs:minInclusive value="0"/> <xs:maxExclusive value="360"/> </xs:restriction> </xs:simpleType>

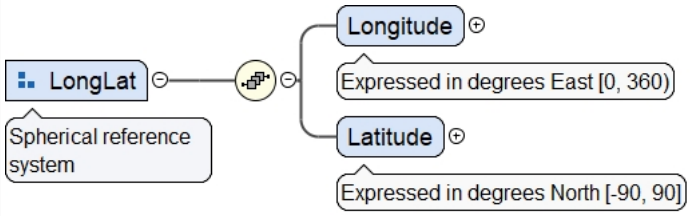
Element Group(s)

Element Group ns1:ContactGroup

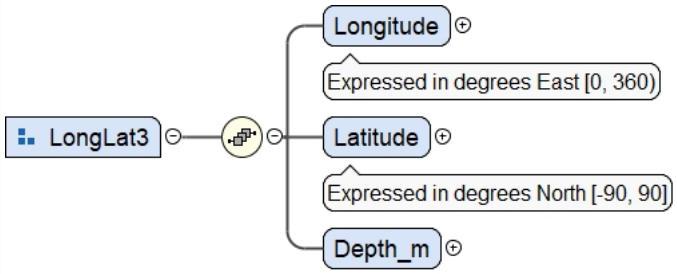
Namespace	http://tethys.sdsu.edu/schema/1.0
Annotations	Contains a subset of the OpenGIS SensorML ContactGroup (http://www.opengis.net/sensorML/1.0). Parsing the full SensorML schema will slow down processing.
Diagram	
Model	Person | ResponsibleParty
Children	Person, ResponsibleParty
Source	<xs:group name="ContactGroup"> <xs:annotation> <xs:documentation>Contains a subset of the OpenGIS SensorML ContactGroup (http:// www.opengis.net/sensorML/1.0). Parsing the full SensorML schema will slow down processing.</ xs:documentation> </xs:annotation> <xs:choice> <xs:element name="Person" type="ns1:Person"/> <xs:element name="ResponsibleParty" type="ns1:ResponsibleParty"/> </xs:choice> </xs:group>

Element Group ns1:LongLat

Namespace	http://tethys.sdsu.edu/schema/1.0
Annotations	Spherical reference system

Diagram	
Model	Longitude , Latitude
Children	Latitude, Longitude
Source	<xs:group name="LongLat"> <xs:annotation> <xs:documentation>Spherical reference system</xs:documentation> </xs:annotation> <xs:sequence> <xs:element name="Longitude" type="ns1:LongitudeValueType"> <xs:annotation> <xs:documentation>Expressed in degrees East [0, 360)</xs:documentation> </xs:annotation> </xs:element> <xs:element name="Latitude" type="ns1:LatitudeValueType"> <xs:annotation> <xs:documentation>Expressed in degrees North [-90, 90]</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:group>

Element Group `ns1:LongLat3`

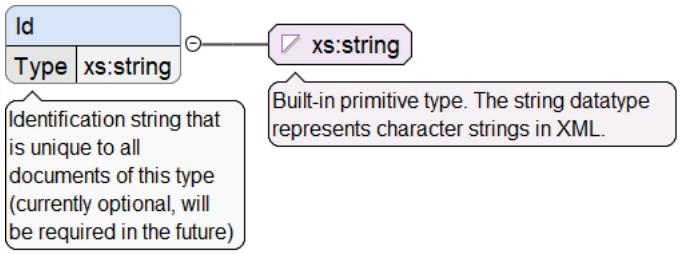
Namespace	http://tethys.sdsu.edu/schema/1.0
Diagram	
Model	Longitude , Latitude , Depth_m
Children	Depth_m, Latitude, Longitude
Source	<xs:group name="LongLat3"> <xs:sequence> <xs:element name="Longitude" type="ns1:LongitudeValueType"> <xs:annotation> <xs:documentation>Expressed in degrees East [0, 360)</xs:documentation> </xs:annotation> </xs:element> <xs:element name="Latitude" type="ns1:LatitudeValueType"> <xs:annotation> <xs:documentation>Expressed in degrees North [-90, 90]</xs:documentation> </xs:annotation> </xs:element> <xs:element name="Depth_m" type="xs:double"/> </xs:sequence> </xs:group>

Namespace: ""

Element(s)

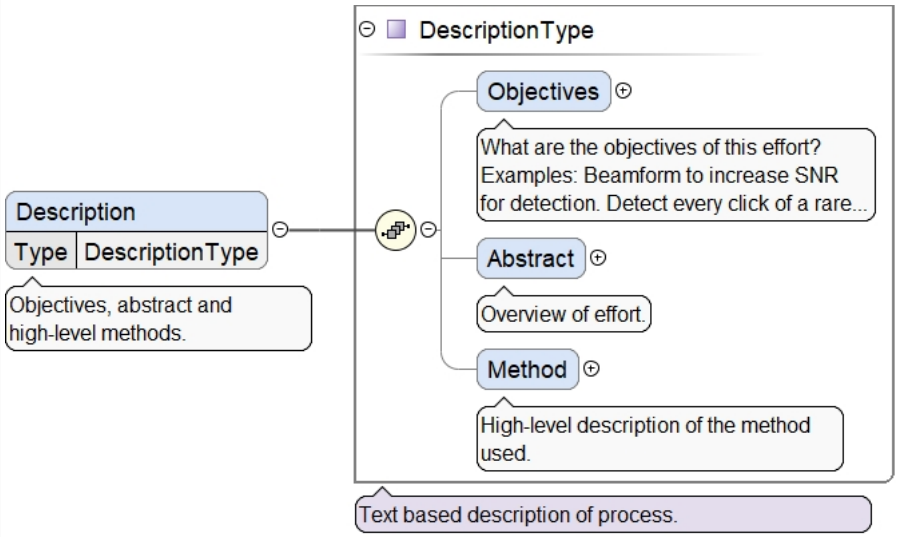
Element `Detections / Id`

Namespace	No namespace
Annotations	Identification string that is unique to all documents of this type (currently optional, will be required in the future)

Diagram	
Type	xs:string
Properties	content: simple minOccurs: 0

Source	`<xs:element name="Id" type="xs:string" minOccurs="0">`
	`  <xs:annotation>`
	`  <xs:documentation>Identification string that is unique to all documents of this type (currently optional, will be required in the future)</xs:documentation>`
	`  </xs:annotation>`
	`</xs:element>`

Element `Detections / Description`

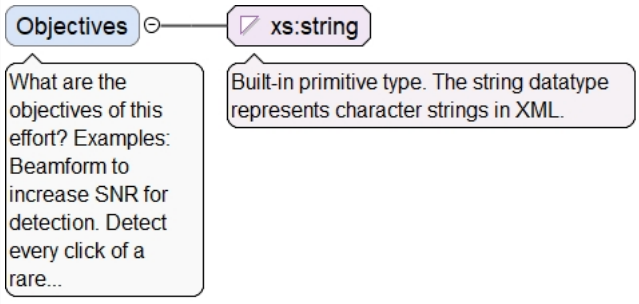
Namespace	No namespace
Annotations	Objectives, abstract and high-level methods.
Diagram	
Type	ns1:DescriptionType
Properties	content: complex minOccurs: 0
Model	Objectives{0,1} , Abstract{0,1} , Method{0,1}
Children	Abstract, Method, Objectives

Instance	`<Description>`
	`  <Objectives>{0,1}</Objectives>`
	`  <Abstract>{0,1}</Abstract>`
	`  <Method>{0,1}</Method>`
	`</Description>`

Source	`<xs:element name="Description" type="DescriptionType" minOccurs="0">`
	`  <xs:annotation>`
	`  <xs:documentation>Objectives, abstract and high-level methods.</xs:documentation>`
	`  </xs:annotation>`
	`</xs:element>`

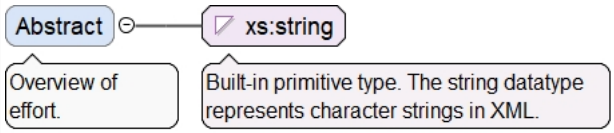
Element `ns1:DescriptionType / Objectives`

Namespace	No namespace
Annotations	What are the objectives of this effort? Examples: Beamform to increase SNR for detection. Detect every click of a rare species.

	Verify data quality.
Diagram	
Type	xs:string
Properties	content: simple minOccurs: 0

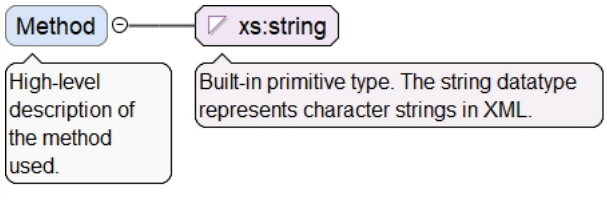
Source	`<xs:element name="Objectives" type="xs:string" minOccurs="0">`
	`  <xs:annotation>`
	`  <xs:documentation>What are the objectives of this effort? Examples: Beamform to increase SNR for detection. Detect every click of a rare species. Verify data quality.</xs:documentation>`
	`  </xs:annotation>`
	`</xs:element>`

Element ns1:DescriptionType / Abstract

Namespace	No namespace
Annotations	Overview of effort.
Diagram	
Type	xs:string
Properties	content: simple minOccurs: 0

Source	`<xs:element name="Abstract" type="xs:string" minOccurs="0">`
	`  <xs:annotation>`
	`  <xs:documentation>Overview of effort.</xs:documentation>`
	`  </xs:annotation>`
	`</xs:element>`

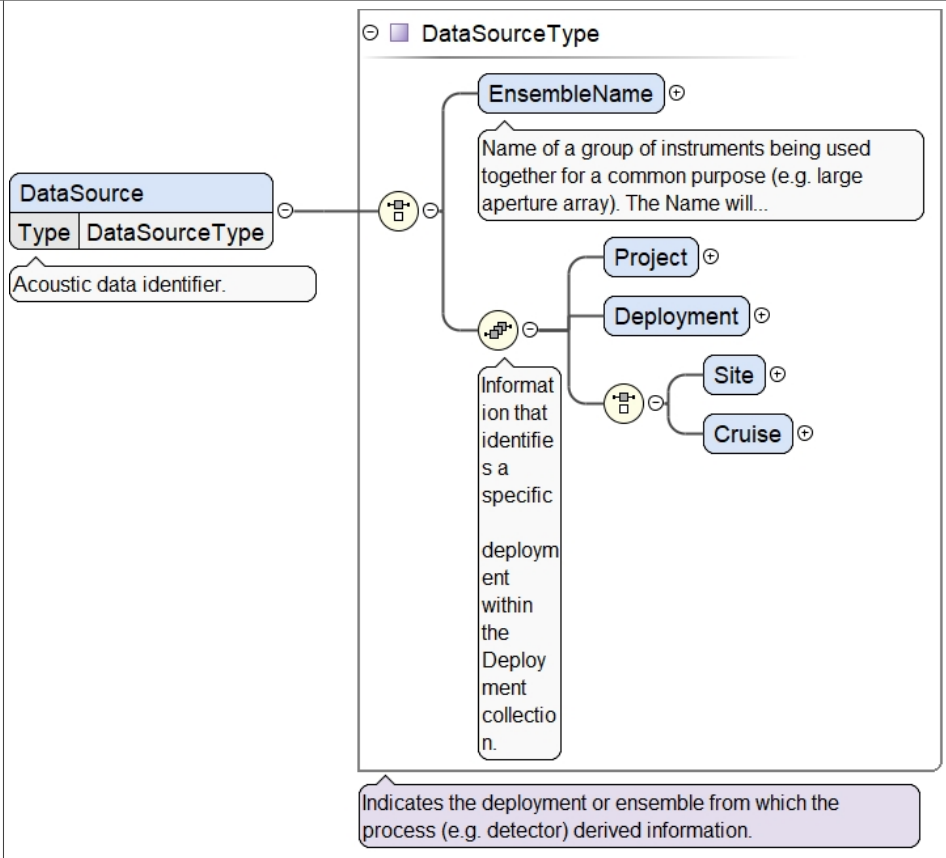
Element ns1:DescriptionType / Method

Namespace	No namespace
Annotations	High-level description of the method used.
Diagram	
Type	xs:string
Properties	content: simple minOccurs: 0

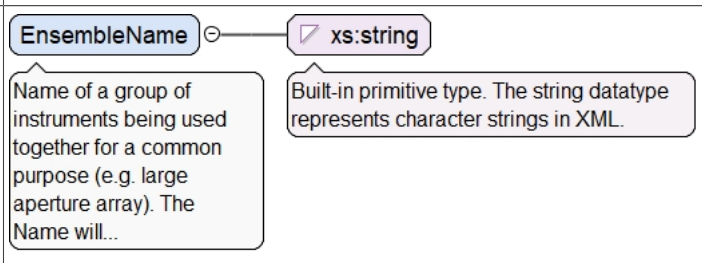
Source	`<xs:element name="Method" type="xs:string" minOccurs="0">`
	`  <xs:annotation>`
	`  <xs:documentation>High-level description of the method used.</xs:documentation>`
	`  </xs:annotation>`
	`</xs:element>`

Element Detections / DataSource

Namespace	No namespace

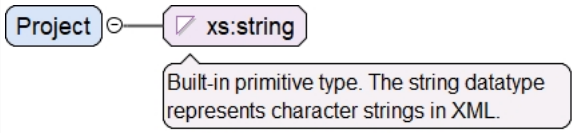
Annotations	Acoustic data identifier.
Diagram	
Type	ns1:DataSourceType
Properties	content: complex
Model	EnsembleName | (Project , Deployment , (Site | Cruise))
Children	Cruise, Deployment, EnsembleName, Project, Site
Instance	<DataSource> <EnsembleName>{1,1}</EnsembleName> <Project>{1,1}</Project> <Deployment>{1,1}</Deployment> <Site>{1,1}</Site> <Cruise>{1,1}</Cruise> </DataSource>
Source	<xs:element name="DataSource" type="DataSourceType"> <xs:annotation> <xs:documentation>Acoustic data identifier.</xs:documentation> </xs:annotation> </xs:element>

Element ns1:DataSourceType / EnsembleName

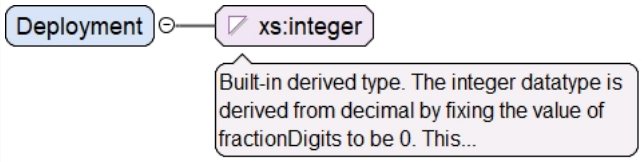
Namespace	No namespace
Annotations	Name of a group of instruments being used together for a common purpose (e.g. large aperture array). The Name will correspond to an instance in the Ensemble collection.
Diagram	
Type	xs:string
Properties	content: simple

Source	<xs:element name="EnsembleName" type="xs:string"> <xs:annotation> <xs:documentation>Name of a group of instruments being used together for a common purpose (e.g. large aperture array). The Name will correspond to an instance in the Ensemble collection.</xs:documentation> </xs:annotation> </xs:element>

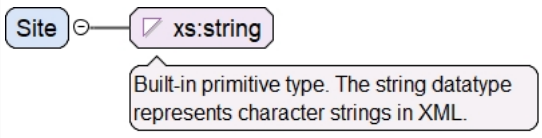
Element ns1:DataSourceType / Project

Namespace	No namespace
Diagram	
Type	xs:string
Properties	content: simple
Source	<xs:element name="Project" type="xs:string"/>

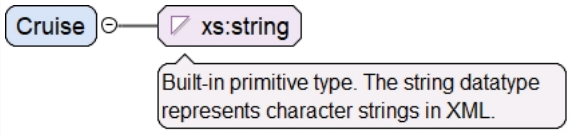
Element ns1:DataSourceType / Deployment

Namespace	No namespace
Diagram	
Type	xs:integer
Properties	content: simple
Source	<xs:element name="Deployment" type="xs:integer"/>

Element ns1:DataSourceType / Site

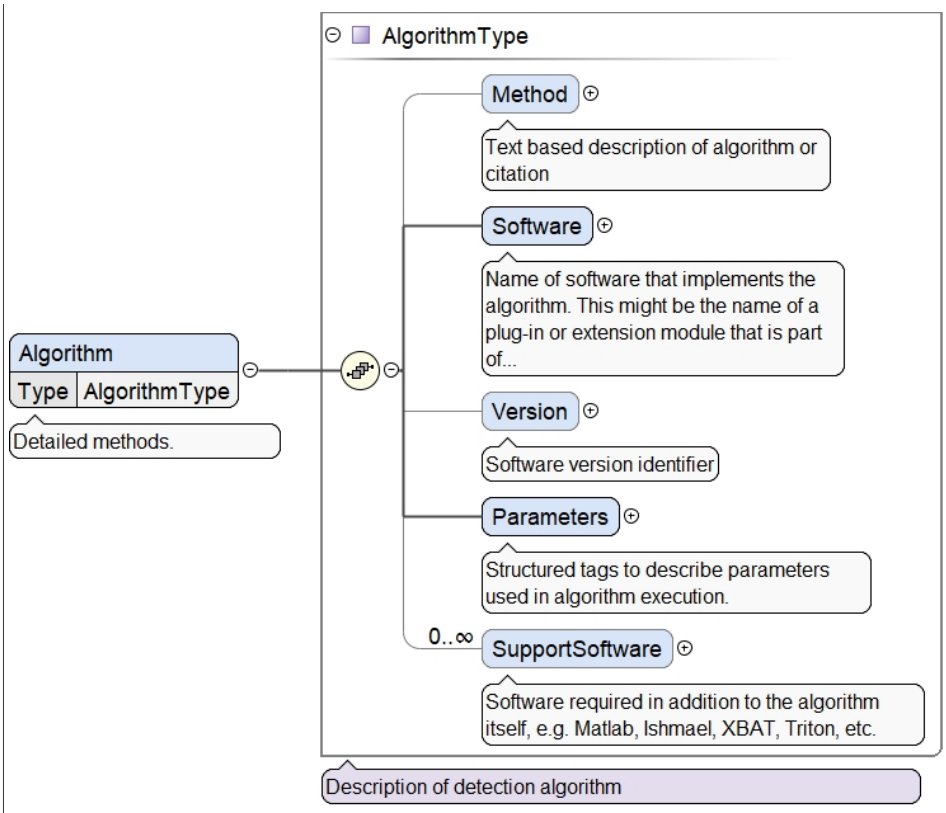
Namespace	No namespace
Diagram	
Type	xs:string
Properties	content: simple
Source	<xs:element name="Site" type="xs:string"/>

Element ns1:DataSourceType / Cruise

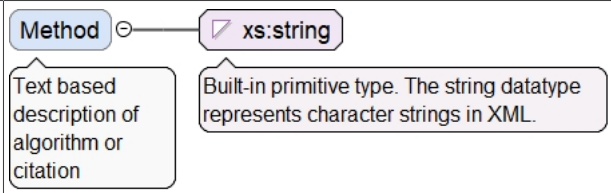
Namespace	No namespace
Diagram	
Type	xs:string
Properties	content: simple
Source	<xs:element name="Cruise" type="xs:string"/>

Element Detections / Algorithm

Namespace	No namespace
Annotations	Detailed methods.

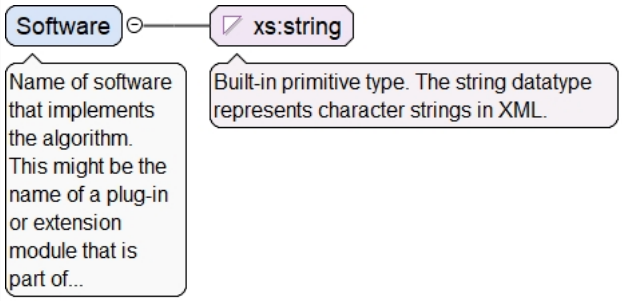
Diagram	
Type	ns1:AlgorithmType
Properties	content: complex
Model	Method{0,1} , Software , Version{0,1} , Parameters , SupportSoftware*
Children	Method, Parameters, Software, SupportSoftware, Version
Instance	<Algorithm> <Method>{0,1}</Method> <Software>{1,1}</Software> <Version>{0,1}</Version> <Parameters>{1,1}</Parameters> <SupportSoftware>{0,unbounded}</SupportSoftware> </Algorithm>
Source	<xs:element name="Algorithm" type="AlgorithmType"> <xs:annotation> <xs:documentation>Detailed methods.</xs:documentation> </xs:annotation> </xs:element>

Element ns1:AlgorithmType / Method

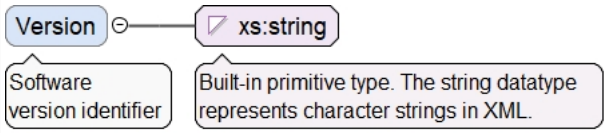
Namespace	No namespace
Annotations	Text based description of algorithm or citation
Diagram	
Type	xs:string
Properties	content: simple minOccurs: 0
Source	<xs:element minOccurs="0" name="Method" type="xs:string"> <xs:annotation> <xs:documentation>Text based description of algorithm or citation</xs:documentation> </xs:annotation>

```
</xs:element>
```

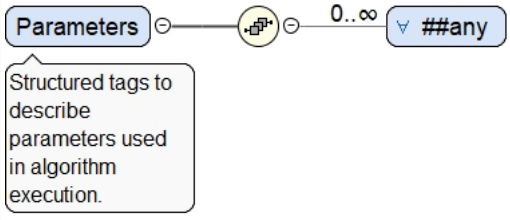
Element ns1:AlgorithmType / Software

Namespace	No namespace
Annotations	Name of software that implements the algorithm. This might be the name of a plug-in or extension module that is part of a larger program or system.
Diagram	
Type	xs:string
Properties	content: simple
Source	<xs:element name="Software" type="xs:string"> <xs:annotation> <xs:documentation>Name of software that implements the algorithm. This might be the name of a plug-in or extension module that is part of a larger program or system.</xs:documentation> </xs:annotation> </xs:element>

Element ns1:AlgorithmType / Version

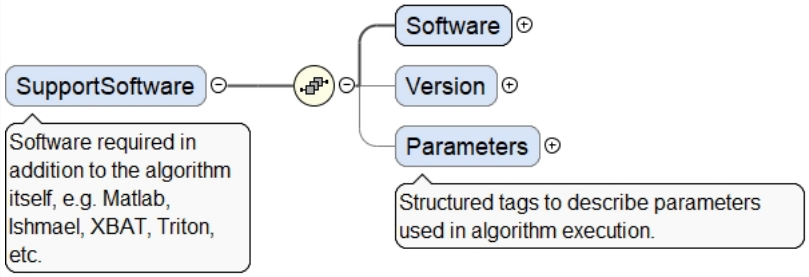
Namespace	No namespace
Annotations	Software version identifier
Diagram	
Type	xs:string
Properties	content: simple minOccurs: 0
Source	<xs:element name="Version" type="xs:string" minOccurs="0"> <xs:annotation> <xs:documentation>Software version identifier</xs:documentation> </xs:annotation> </xs:element>

Element ns1:AlgorithmType / Parameters

Namespace	No namespace
Annotations	Structured tags to describe parameters used in algorithm execution.
Diagram	
Properties	content: complex
Model	ANY element from ANY namespace
Source	<xs:element name="Parameters"> <xs:annotation> <xs:documentation>Structured tags to describe parameters used in algorithm execution.</ xs:documentation>

```
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:any maxOccurs="unbounded" minOccurs="0" namespace="##any" processContents="skip"/>
    </xs:sequence>
  </xs:complexType>
</xs:element>
```

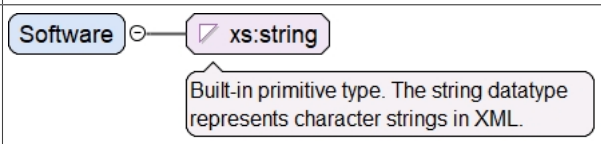
Element ns1:AlgorithmType / SupportSoftware

Namespace	No namespace
Annotations	Software required in addition to the algorithm itself, e.g. Matlab, Ishmael, XBAT, Triton, etc.
Diagram	
Properties	content: complex minOccurs: 0 maxOccurs: unbounded
Model	Software , Version{0,1} , Parameters{0,1}
Children	Parameters, Software, Version

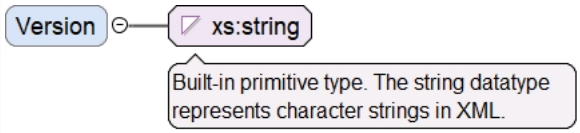
Instance	`<SupportSoftware>`
	`  <Software>{1,1}</Software>`
	`  <Version>{0,1}</Version>`
	`  <Parameters>{0,1}</Parameters>`
	`</SupportSoftware>`

Source	`<xs:element name="SupportSoftware" maxOccurs="unbounded" minOccurs="0">`
	`  <xs:annotation>`
	`  <xs:documentation>Software required in addition to the algorithm itself, e.g. Matlab, Ishmael, XBAT, Triton, etc.</xs:documentation>`
	`  </xs:annotation>`
	`  <xs:complexType>`
	`  <xs:sequence>`
	`  <xs:element name="Software" type="xs:string"/>`
	`  <xs:element name="Version" type="xs:string" minOccurs="0"/>`
	`  <xs:element name="Parameters" minOccurs="0">`
	`  <xs:annotation>`
	`  <xs:documentation>Structured tags to describe parameters used in algorithm execution.</xs:documentation>`
	`  </xs:annotation>`
	`  <xs:complexType>`
	`  <xs:sequence>`
	`  <xs:any maxOccurs="unbounded" minOccurs="0" namespace="##any" processContents="skip"/>`
	`  </xs:sequence>`
	`  </xs:complexType>`
	`  </xs:element>`
	`  </xs:sequence>`
	`  </xs:complexType>`
	`</xs:element>`

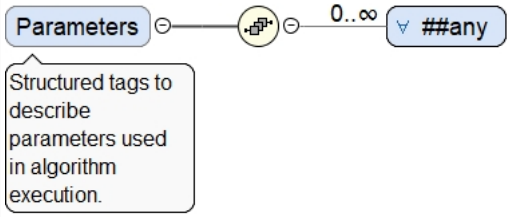
Element ns1:AlgorithmType / SupportSoftware / Software

Namespace	No namespace
Diagram	
Type	xs:string
Properties	content: simple
Source	`<xs:element name="Software" type="xs:string"/>`

Element ns1:AlgorithmType / SupportSoftware / Version

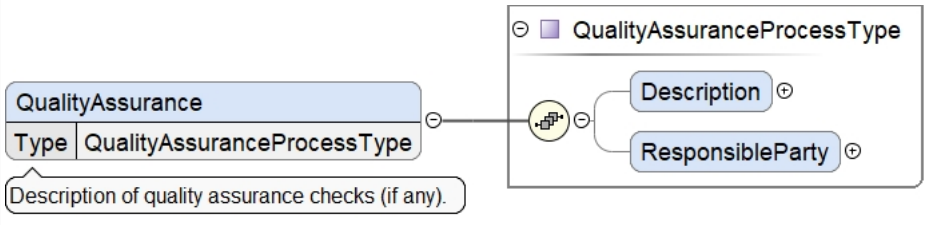
Namespace	No namespace
Diagram	
Type	xs:string
Properties	content: simple minOccurs: 0
Source	`<xs:element name="Version" type="xs:string" minOccurs="0"/>`

Element ns1:AlgorithmType / SupportSoftware / Parameters

Namespace	No namespace
Annotations	Structured tags to describe parameters used in algorithm execution.
Diagram	
Properties	content: complex minOccurs: 0
Model	ANY element from ANY namespace

Source	`<xs:element name="Parameters" minOccurs="0">`
	`  <xs:annotation>`
	`  <xs:documentation>Structured tags to describe parameters used in algorithm execution.</xs:documentation>`
	`  </xs:annotation>`
	`  <xs:complexType>`
	`  <xs:sequence>`
	`  <xs:any maxOccurs="unbounded" minOccurs="0" namespace="##any" processContents="skip"/>`
	`  </xs:sequence>`
	`  </xs:complexType>`
	`</xs:element>`

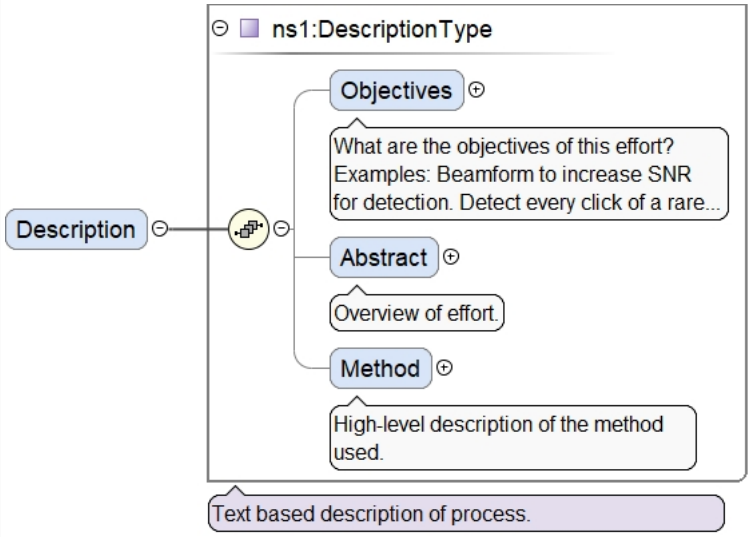
Element Detections / QualityAssurance

Namespace	No namespace
Annotations	Description of quality assurance checks (if any).
Diagram	
Type	ns1:QualityAssuranceProcessType
Properties	content: complex minOccurs: 0
Model	Description{0,1} , ResponsibleParty{0,1}
Children	Description, ResponsibleParty

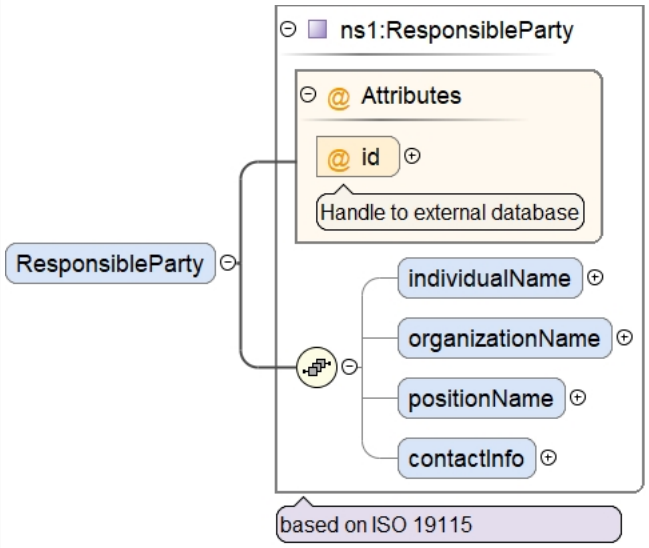
Instance	`<QualityAssurance>`
	`  <Description>{0,1}</Description>`
	`  <ResponsibleParty id="">{0,1}</ResponsibleParty>`
	`</QualityAssurance>`

Source	<xs:element minOccurs="0" name="QualityAssurance" type="QualityAssuranceProcessType"> <xs:annotation> <xs:documentation>Description of quality assurance checks (if any).</xs:documentation> </xs:annotation> </xs:element>

Element ns1:QualityAssuranceProcessType / Description

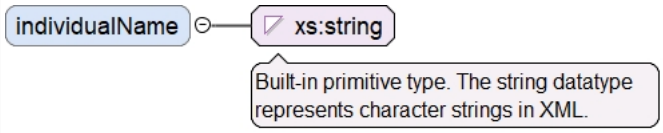
Namespace	No namespace
Diagram	
Type	ns1:DescriptionType
Properties	content: complex minOccurs: 0
Model	Objectives{0,1} , Abstract{0,1} , Method{0,1}
Children	Abstract, Method, Objectives
Instance	<Description> <Objectives>{0,1}</Objectives> <Abstract>{0,1}</Abstract> <Method>{0,1}</Method> </Description>
Source	<xs:element name="Description" type="ns1:DescriptionType" minOccurs="0"/>

Element ns1:QualityAssuranceProcessType / ResponsibleParty

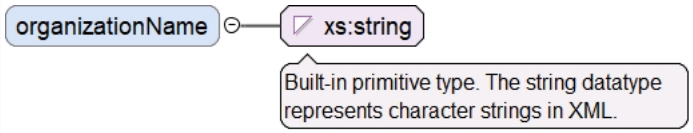
Namespace	No namespace
Diagram	
Type	ns1:ResponsibleParty

Properties	content:	complex
	minOccurs:	0
Model	individualName{0,1} , organizationName{0,1} , positionName{0,1} , contactInfo{0,1}	
Children	contactInfo, individualName, organizationName, positionName	
Instance	<ResponsibleParty id=""> <individualName>{0,1}</individualName> <organizationName>{0,1}</organizationName> <positionName>{0,1}</positionName> <contactInfo>{0,1}</contactInfo> </ResponsibleParty>	
Attributes	**QName**	**Type** / **Use**
	id	xs:NCName / optional
		Handle to external database
Source	<xs:element name="ResponsibleParty" type="ns1:ResponsibleParty" minOccurs="0"/>	

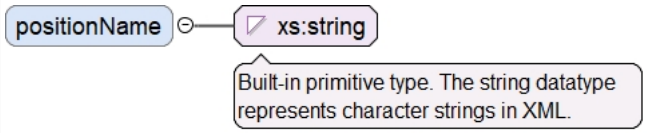
Element ns1:ResponsibleParty / individualName

Namespace	No namespace
Diagram	
Type	xs:string
Properties	content: simple minOccurs: 0
Source	<xs:element minOccurs="0" name="individualName" type="xs:string"/>

Element ns1:ResponsibleParty / organizationName

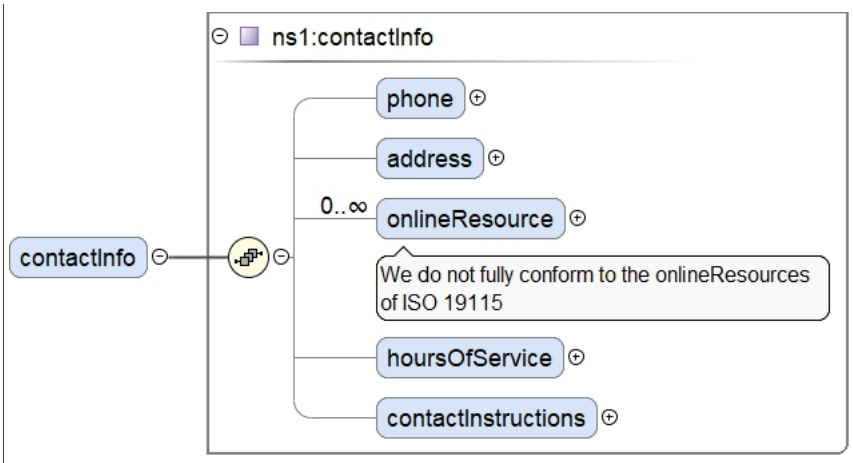
Namespace	No namespace
Diagram	
Type	xs:string
Properties	content: simple minOccurs: 0
Source	<xs:element minOccurs="0" name="organizationName" type="xs:string"/>

Element ns1:ResponsibleParty / positionName

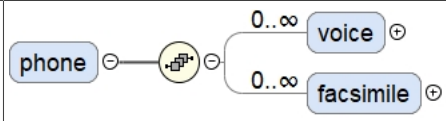
Namespace	No namespace
Diagram	
Type	xs:string
Properties	content: simple minOccurs: 0
Source	<xs:element minOccurs="0" name="positionName" type="xs:string"/>

Element ns1:ResponsibleParty / contactInfo

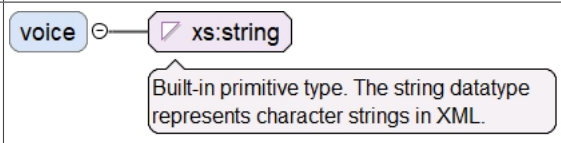
Namespace	No namespace

Diagram	
Type	ns1:contactInfo
Properties	content: complex minOccurs: 0
Model	phone{0,1} , address{0,1} , onlineResource* , hoursOfService{0,1} , contactInstructions{0,1}
Children	address, contactInstructions, hoursOfService, onlineResource, phone
Instance	<contactInfo> <phone>{0,1}</phone> <address>{0,1}</address> <onlineResource>{0,unbounded}</onlineResource> <hoursOfService>{0,1}</hoursOfService> <contactInstructions>{0,1}</contactInstructions> </contactInfo>
Source	<xs:element minOccurs="0" name="contactInfo" type="ns1:contactInfo"/>

Element ns1:contactInfo / phone

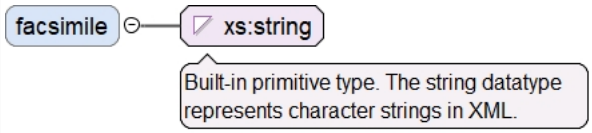
Namespace	No namespace
Diagram	
Properties	content: complex minOccurs: 0
Model	voice* , facsimile*
Children	facsimile, voice
Instance	<phone> <voice>{0,unbounded}</voice> <facsimile>{0,unbounded}</facsimile> </phone>
Source	<xs:element minOccurs="0" name="phone"> <xs:complexType> <xs:sequence> <xs:element maxOccurs="unbounded" minOccurs="0" name="voice" type="xs:string"/> <xs:element maxOccurs="unbounded" minOccurs="0" name="facsimile" type="xs:string"/> </xs:sequence> </xs:complexType> </xs:element>

Element ns1:contactInfo / phone / voice

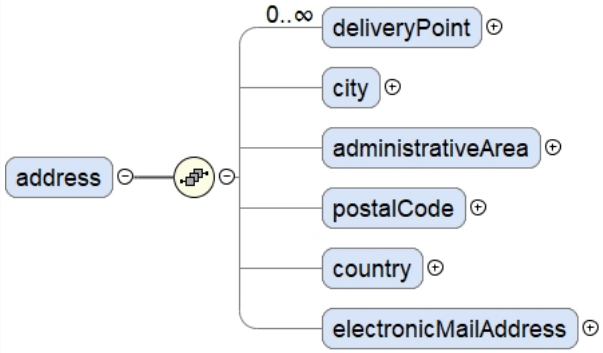
Namespace	No namespace
Diagram	
Type	xs:string

Properties	content:	simple
	minOccurs:	0
	maxOccurs:	unbounded
Source	<xs:element maxOccurs="unbounded" minOccurs="0" name="voice" type="xs:string"/>	

Element ns1:contactInfo / phone / facsimile

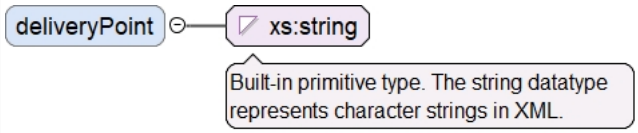
Namespace	No namespace
Diagram	
Type	xs:string
Properties	content: simple minOccurs: 0 maxOccurs: unbounded
Source	<xs:element maxOccurs="unbounded" minOccurs="0" name="facsimile" type="xs:string"/>

Element ns1:contactInfo / address

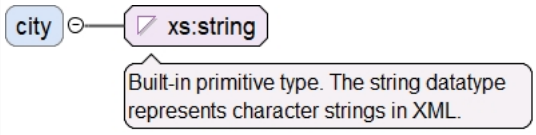
Namespace	No namespace
Diagram	
Properties	content: complex minOccurs: 0
Model	deliveryPoint* , city{0,1} , administrativeArea{0,1} , postalCode{0,1} , country{0,1} , electronicMailAddress{0,1}
Children	administrativeArea, city, country, deliveryPoint, electronicMailAddress, postalCode
Instance	<address> <deliveryPoint>{0,unbounded}</deliveryPoint> <city>{0,1}</city> <administrativeArea>{0,1}</administrativeArea> <postalCode>{0,1}</postalCode> <country>{0,1}</country> <electronicMailAddress>{0,1}</electronicMailAddress> </address>
Source	<xs:element minOccurs="0" name="address"> <xs:complexType> <xs:sequence> <xs:element maxOccurs="unbounded" minOccurs="0" name="deliveryPoint" type="xs:string"/> <xs:element minOccurs="0" name="city" type="xs:string"/> <xs:element minOccurs="0" name="administrativeArea" type="xs:string"/> <xs:element minOccurs="0" name="postalCode" type="xs:string"/> <xs:element minOccurs="0" name="country" type="xs:string"/> <xs:element minOccurs="0" name="electronicMailAddress" type="xs:string"/> </xs:sequence> </xs:complexType> </xs:element>

Element ns1:contactInfo / address / deliveryPoint

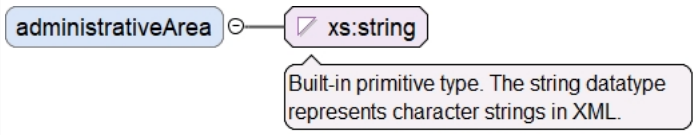
Namespace	No namespace

Diagram	
Type	xs:string
Properties	content: simple minOccurs: 0 maxOccurs: unbounded
Source	`<xs:element maxOccurs="unbounded" minOccurs="0" name="deliveryPoint" type="xs:string"/>`

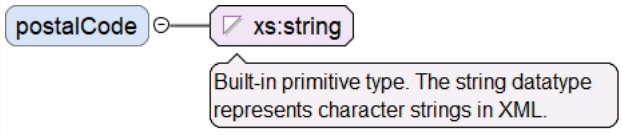
Element ns1:contactInfo / address / city

Namespace	No namespace
Diagram	
Type	xs:string
Properties	content: simple minOccurs: 0
Source	`<xs:element minOccurs="0" name="city" type="xs:string"/>`

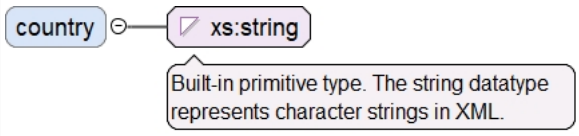
Element ns1:contactInfo / address / administrativeArea

Namespace	No namespace
Diagram	
Type	xs:string
Properties	content: simple minOccurs: 0
Source	`<xs:element minOccurs="0" name="administrativeArea" type="xs:string"/>`

Element ns1:contactInfo / address / postalCode

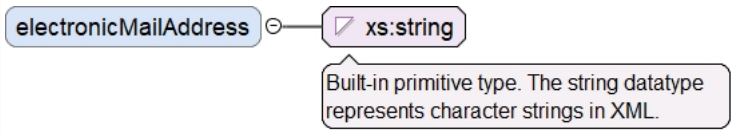
Namespace	No namespace
Diagram	
Type	xs:string
Properties	content: simple minOccurs: 0
Source	`<xs:element minOccurs="0" name="postalCode" type="xs:string"/>`

Element ns1:contactInfo / address / country

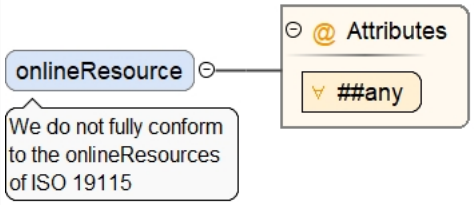
Namespace	No namespace
Diagram	

Type	xs:string
Properties	content: simple minOccurs: 0
Source	`<xs:element minOccurs="0" name="country" type="xs:string"/>`

Element ns1:contactInfo / address / electronicMailAddress

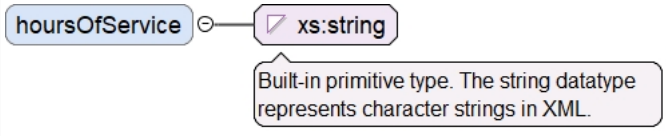
Namespace	No namespace
Diagram	
Type	xs:string
Properties	content: simple minOccurs: 0
Source	`<xs:element minOccurs="0" name="electronicMailAddress" type="xs:string"/>`

Element ns1:contactInfo / onlineResource

Namespace	No namespace
Annotations	We do not fully conform to the onlineResources of ISO 19115
Diagram	
Properties	content: complex minOccurs: 0 maxOccurs: unbounded
Attributes	**Wildcard:** ANY attribute from ANY namespace

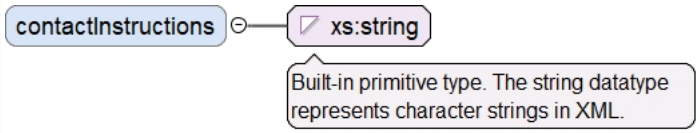
Source	`<xs:element maxOccurs="unbounded" minOccurs="0" name="onlineResource">`
	`  <xs:annotation>`
	`  <xs:documentation>We do not fully conform to the onlineResources of ISO 19115</xs:documentation>`
	`  </xs:annotation>`
	`  <xs:complexType>`
	`  <xs:anyAttribute namespace="##any"/>`
	`  </xs:complexType>`
	`</xs:element>`

Element ns1:contactInfo / hoursOfService

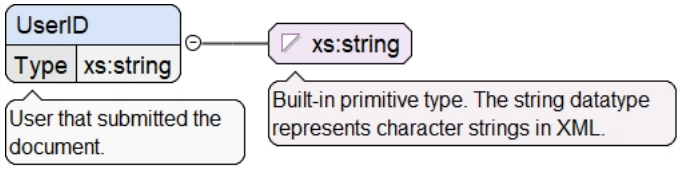
Namespace	No namespace
Diagram	
Type	xs:string
Properties	content: simple minOccurs: 0
Source	`<xs:element minOccurs="0" name="hoursOfService" type="xs:string"/>`

Element ns1:contactInfo / contactInstructions

Namespace	No namespace

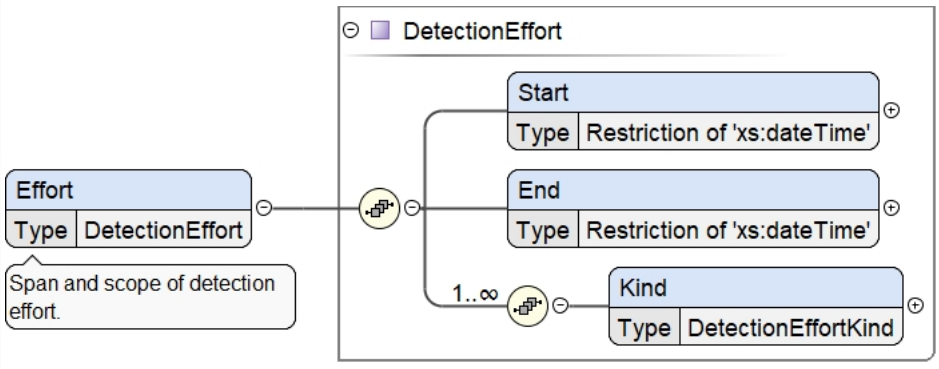
Diagram	
Type	xs:string
Properties	content: simple minOccurs: 0
Source	`<xs:element minOccurs="0" name="contactInstructions" type="xs:string"/>`

Element Detections / UserID

Namespace	No namespace
Annotations	User that submitted the document.
Diagram	
Type	xs:string
Properties	content: simple

Source	`<xs:element name="UserID" type="xs:string">`
	`  <xs:annotation>`
	`  <xs:documentation>User that submitted the document.</xs:documentation>`
	`  </xs:annotation>`
	`</xs:element>`

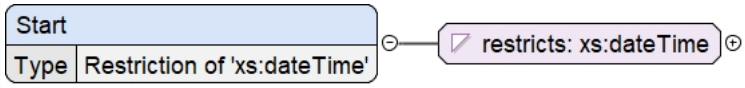
Element Detections / Effort

Namespace	No namespace
Annotations	Span and scope of detection effort.
Diagram	
Type	DetectionEffort
Properties	content: complex maxOccurs: 1
Model	Start , End , Kind
Children	End, Kind, Start

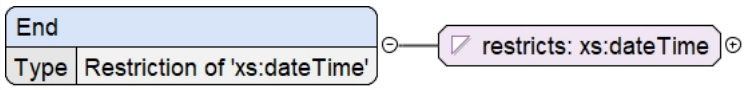
Instance	`<Effort>`
	`  <Start>{1,1}</Start>`
	`  <End>{1,1}</End>`
	`  <Kind>{1,1}</Kind>`
	`</Effort>`

Source	`<xs:element name="Effort" maxOccurs="1" type="DetectionEffort">`
	`  <xs:annotation>`
	`  <xs:documentation>Span and scope of detection effort.</xs:documentation>`
	`  </xs:annotation>`
	`</xs:element>`

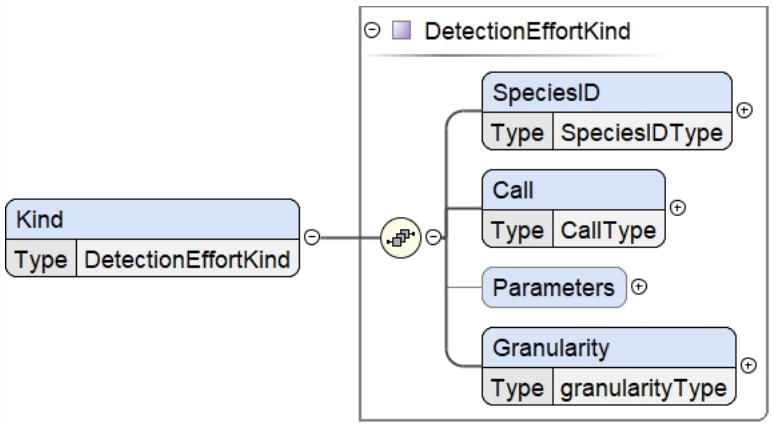
Element DetectionEffort / Start

Namespace	No namespace
Diagram	
Type	restriction of xs:dateTime
Properties	content: simple
Facets	whiteSpace collapse
Source	<xs:element name="Start"> <xs:simpleType> <xs:restriction base="xs:dateTime"> <xs:whiteSpace value="collapse"/> </xs:restriction> </xs:simpleType> </xs:element>

Element DetectionEffort / End

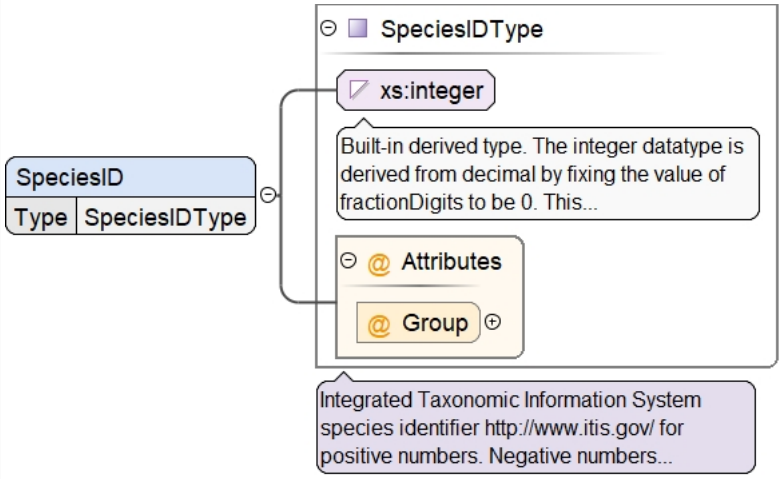
Namespace	No namespace
Diagram	
Type	restriction of xs:dateTime
Properties	content: simple
Facets	whiteSpace collapse
Source	<xs:element name="End"> <xs:simpleType> <xs:restriction base="xs:dateTime"> <xs:whiteSpace value="collapse"/> </xs:restriction> </xs:simpleType> </xs:element>

Element DetectionEffort / Kind

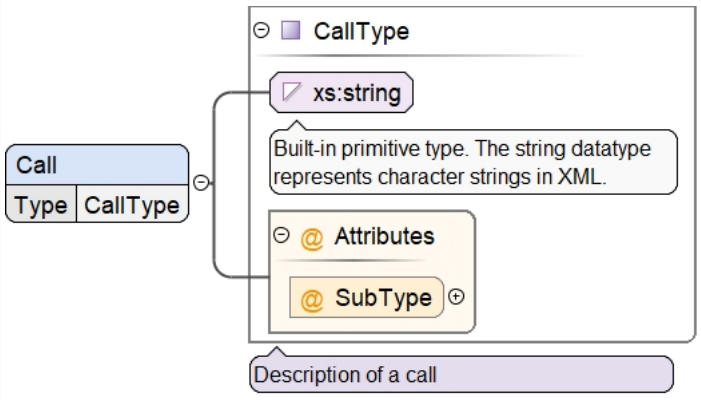
Namespace	No namespace
Diagram	
Type	DetectionEffortKind
Properties	content: complex
Model	SpeciesID , Call , Parameters{0,1} , Granularity
Children	Call, Granularity, Parameters, SpeciesID
Instance	<Kind> <SpeciesID Group="">{1,1}</SpeciesID> <Call SubType="">{1,1}</Call>

	<Parameters>{0,1}</Parameters> <Granularity BinSize_m="">{1,1}</Granularity> </Kind>
Source	<xs:element name="Kind" type="DetectionEffortKind"> </xs:element>

Element DetectionEffortKind / SpeciesID

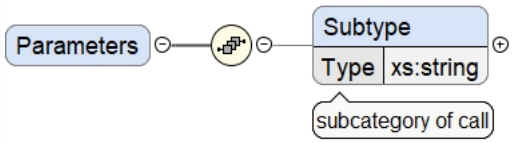
Namespace	No namespace
Diagram	
Type	ns1:SpeciesIDType
Properties	content: complex
Attributes	**QName** / **Type** / **Use** **Group** / xs:string / optional
Source	<xs:element name="SpeciesID" type="SpeciesIDType"/>

Element DetectionEffortKind / Call

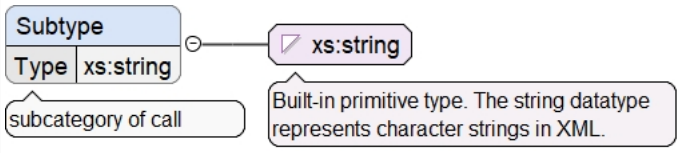
Namespace	No namespace
Diagram	
Type	ns1:CallType
Properties	content: complex
Attributes	**QName** / **Type** / **Use** **SubType** / xs:string / optional
Source	<xs:element name="Call" type="CallType"/>

Element DetectionEffortKind / Parameters

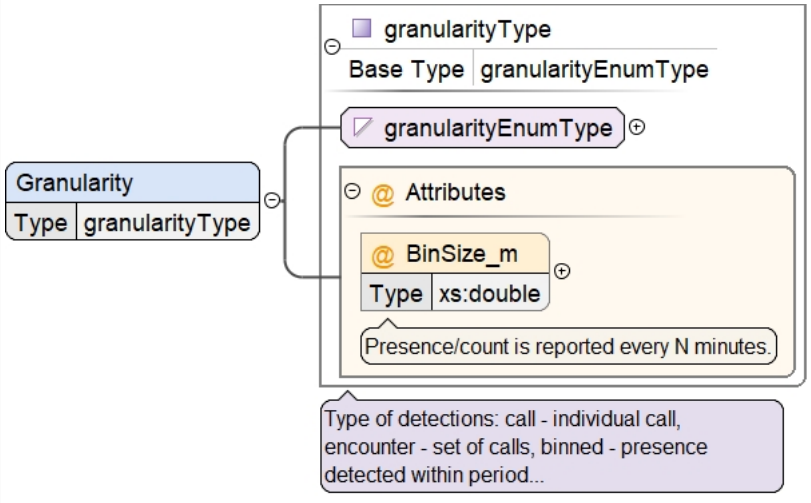
Namespace	No namespace

Diagram	
Properties	content: complex minOccurs: 0
Model	Subtype{0,1}
Children	Subtype
Instance	<Parameters> <Subtype>{0,1}</Subtype> </Parameters>
Source	<xs:element minOccurs="0" name="Parameters"> <xs:complexType> <xs:sequence> <xs:element minOccurs="0" name="Subtype" type="xs:string"> <xs:annotation> <xs:documentation>subcategory of call</xs:documentation> </xs:annotation> </xs:element> </xs:sequence> </xs:complexType> </xs:element>

Element DetectionEffortKind / Parameters / Subtype

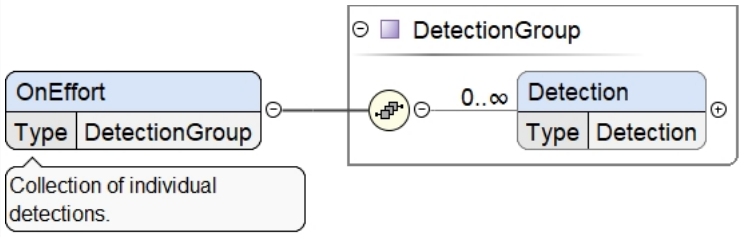
Namespace	No namespace
Annotations	subcategory of call
Diagram	
Type	xs:string
Properties	content: simple minOccurs: 0
Source	<xs:element minOccurs="0" name="Subtype" type="xs:string"> <xs:annotation> <xs:documentation>subcategory of call</xs:documentation> </xs:annotation> </xs:element>

Element DetectionEffortKind / Granularity

Namespace	No namespace
Diagram	

Type	granularityType
Type hierarchy	• xs:string • granularityEnumType • granularityType
Properties	content: complex
Attributes	**QName** / **Type** / **Use** **BinSize_m** / xs:double / optional Presence/count is reported every N minutes.
Source	`<xs:element name="Granularity" type="granularityType"/>`

Element Detections / OnEffort

Namespace	No namespace
Annotations	Collection of individual detections.
Diagram	
Type	DetectionGroup
Properties	content: complex
Model	Detection*
Children	Detection

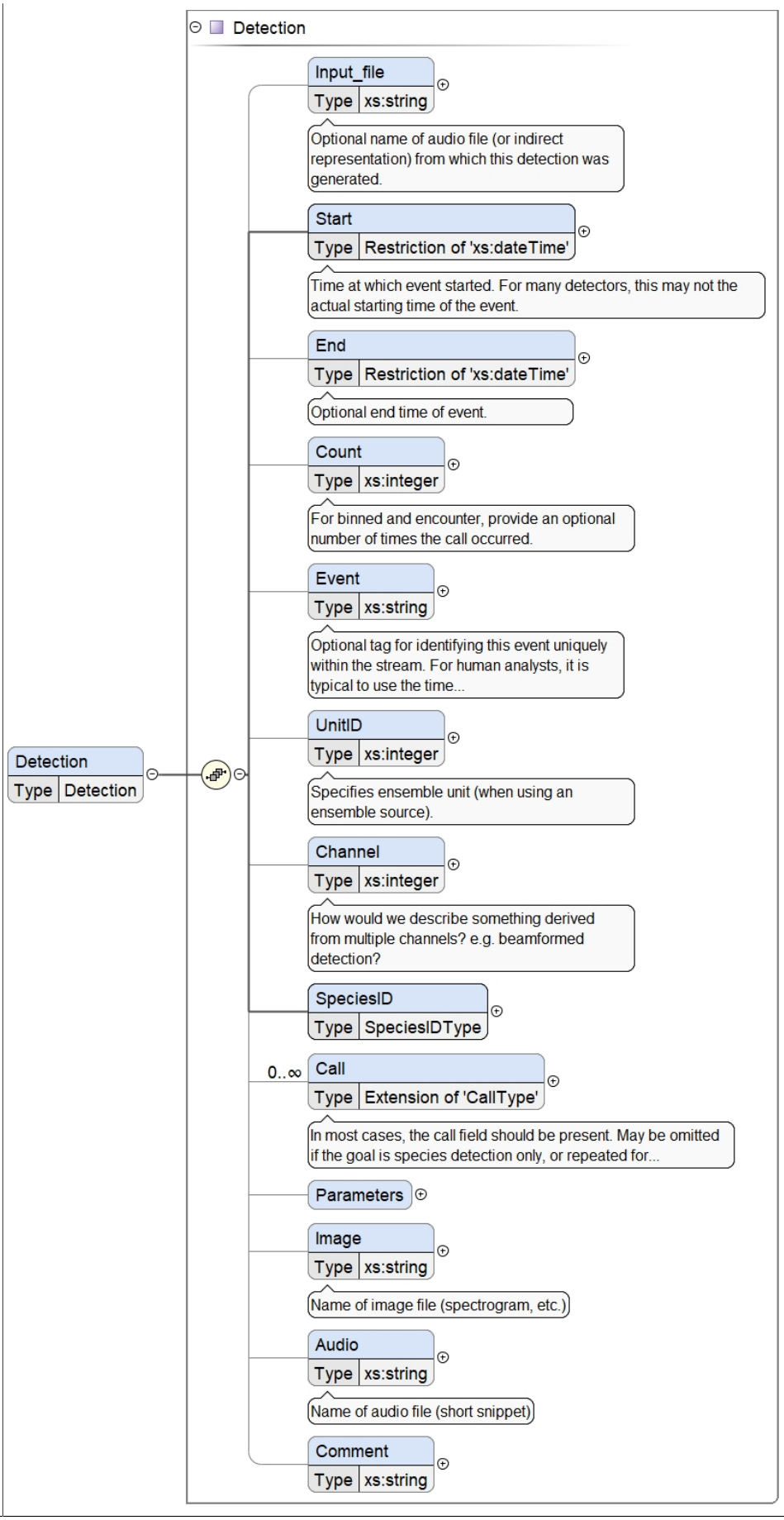
Instance	`<OnEffort>`
	`  <Detection>{0,unbounded}</Detection>`
	`</OnEffort>`

Source	`<xs:element name="OnEffort" type="DetectionGroup">`
	`  <xs:annotation>`
	`  <xs:documentation>Collection of individual detections.</xs:documentation>`
	`  </xs:annotation>`
	`</xs:element>`

Element DetectionGroup / Detection

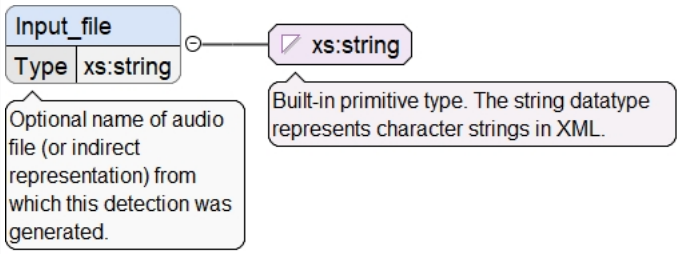
Namespace	No namespace

Diagram

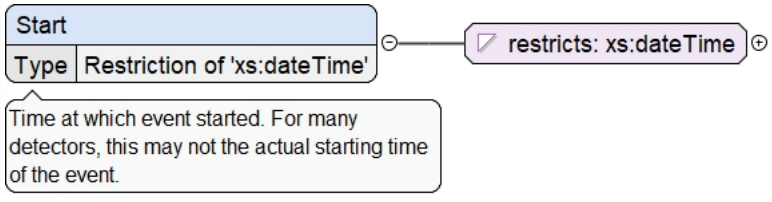

Detection
Input_file
Type xs:string
Optional name of audio file (or indirect representation) from which this detection was generated.
Start
Type Restriction of 'xs:dateTime'
Time at which event started. For many detectors, this may not the actual starting time of the event.
End
Type Restriction of 'xs:dateTime'
Optional end time of event.
Count
Type xs:integer
For binned and encounter, provide an optional number of times the call occurred.
Event
Type xs:string
Optional tag for identifying this event uniquely within the stream. For human analysts, it is typical to use the time...
UnitID
Type xs:integer
Specifies ensemble unit (when using an ensemble source).
Channel
Type xs:integer
How would we describe something derived from multiple channels? e.g. beamformed detection?
SpeciesID
Type SpeciesIDType
0..∞
Call
Type Extension of 'CallType'
In most cases, the call field should be present. May be omitted if the goal is species detection only, or repeated for...
Parameters
Image
Type xs:string
Name of image file (spectrogram, etc.)
Audio
Type xs:string
Name of audio file (short snippet)
Comment
Type xs:string
Detection
Type Detection

Type	Detection
Properties	content: complex minOccurs: 0 maxOccurs: unbounded
Model	Input_file{0,1} , Start , End{0,1} , Count{0,1} , Event{0,1} , UnitID{0,1} , Channel{0,1} , SpeciesID , Call* , Parameters{0,1} , Image{0,1} , Audio{0,1} , Comment{0,1}
Children	Audio, Call, Channel, Comment, Count, End, Event, Image, Input_file, Parameters, SpeciesID, Start, UnitID
Instance	<Detection> <Input_file>{0,1}</Input_file> <Start>{1,1}</Start> <End>{0,1}</End> <Count>{0,1}</Count> <Event>{0,1}</Event> <UnitID>{0,1}</UnitID> <Channel>{0,1}</Channel> <SpeciesID Group="">{1,1}</SpeciesID> <Call Count="" SubType="">{0,unbounded}</Call> <Parameters>{0,1}</Parameters> <Image>{0,1}</Image> <Audio>{0,1}</Audio> <Comment>{0,1}</Comment> </Detection>
Source	<xs:element name="Detection" minOccurs="0" maxOccurs="unbounded" type="Detection"/>

Element Detection / Input_file

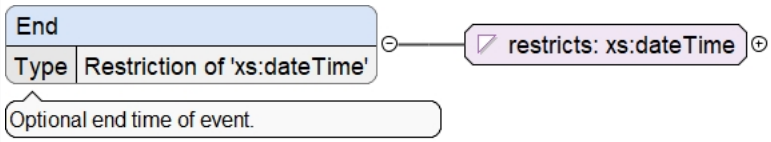
Namespace	No namespace
Annotations	Optional name of audio file (or indirect representation) from which this detection was generated.
Diagram	
Type	xs:string
Properties	content: simple minOccurs: 0
Source	<xs:element name="Input_file" type="xs:string" minOccurs="0"> <xs:annotation> <xs:documentation>Optional name of audio file (or indirect representation) from which this detection was generated.</xs:documentation> </xs:annotation> </xs:element>

Element Detection / Start

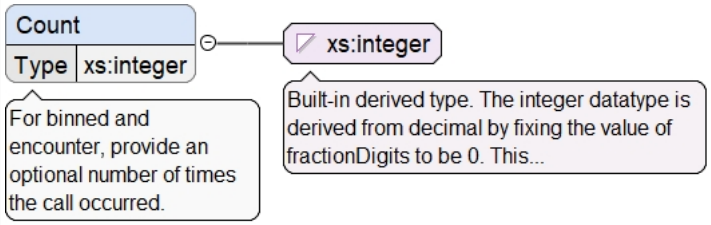
Namespace	No namespace
Annotations	Time at which event started. For many detectors, this may not the actual starting time of the event.
Diagram	
Type	restriction of xs:dateTime
Properties	content: simple

Facets	whiteSpace collapse
Source	<xs:element name="Start"> <xs:annotation> <xs:documentation>Time at which event started. For many detectors, this may not the actual starting time of the event.</xs:documentation> </xs:annotation> <xs:simpleType> <xs:restriction base="xs:dateTime"> <xs:whiteSpace value="collapse"/> </xs:restriction> </xs:simpleType> </xs:element>

Element Detection / End

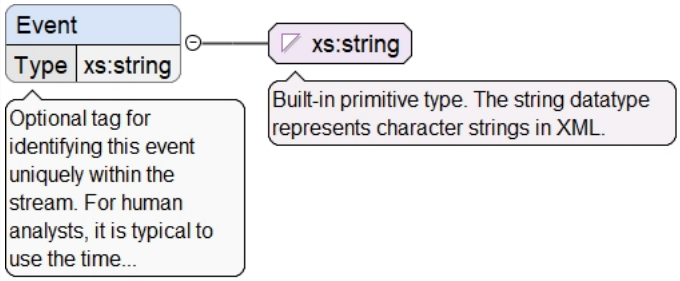
Namespace	No namespace
Annotations	Optional end time of event.
Diagram	
Type	restriction of xs:dateTime
Properties	content: simple minOccurs: 0
Facets	whiteSpace collapse
Source	<xs:element name="End" minOccurs="0"> <xs:annotation> <xs:documentation>Optional end time of event.</xs:documentation> </xs:annotation> <xs:simpleType> <xs:restriction base="xs:dateTime"> <xs:whiteSpace value="collapse"/> </xs:restriction> </xs:simpleType> </xs:element>

Element Detection / Count

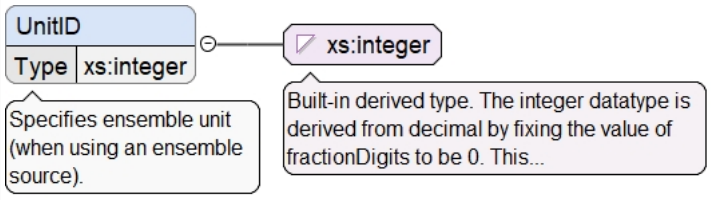
Namespace	No namespace
Annotations	For binned and encounter, provide an optional number of times the call occurred.
Diagram	
Type	xs:integer
Properties	content: simple minOccurs: 0
Source	<xs:element minOccurs="0" name="Count" type="xs:integer"> <xs:annotation> <xs:documentation>For binned and encounter, provide an optional number of times the call occurred.</xs:documentation> </xs:annotation> </xs:element>

Element Detection / Event

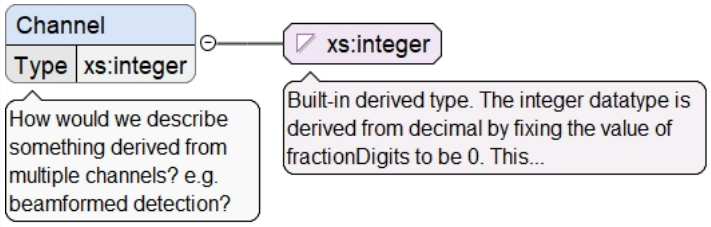
Namespace	No namespace

Annotations	Optional tag for identifying this event uniquely within the stream. For human analysts, it is typical to use the time at which the detection was made in ISO 8601 format (YYYY-MM-DDTHH:MM:SSZ). When present, the combination of the event and attributes that uniquely identify the set of detections (or document name) must be uniqe.
Diagram	
Type	xs:string
Properties	content: simple minOccurs: 0
Source	<xs:element name="Event" minOccurs="0" type="xs:string"> <xs:annotation> <xs:documentation>Optional tag for identifying this event uniquely within the stream. For human analysts, it is typical to use the time at which the detection was made in ISO 8601 format (YYYY-MM-DDTHH:MM:SSZ). When present, the combination of the event and attributes that uniquely identify the set of detections (or document name) must be uniqe.</xs:documentation> </xs:annotation> </xs:element>

Element Detection / UnitID

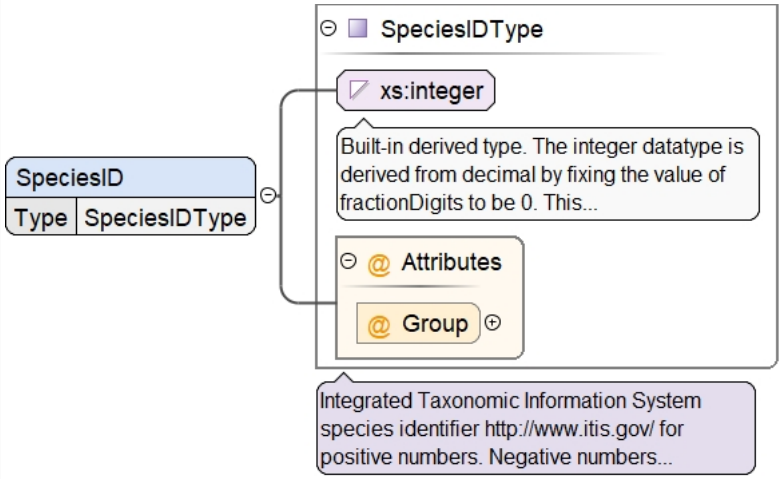
Namespace	No namespace
Annotations	Specifies ensemble unit (when using an ensemble source).
Diagram	
Type	xs:integer
Properties	content: simple minOccurs: 0
Source	<xs:element minOccurs="0" name="UnitID" type="xs:integer"> <xs:annotation> <xs:documentation>Specifies ensemble unit (when using an ensemble source).</xs:documentation> </xs:annotation> </xs:element>

Element Detection / Channel

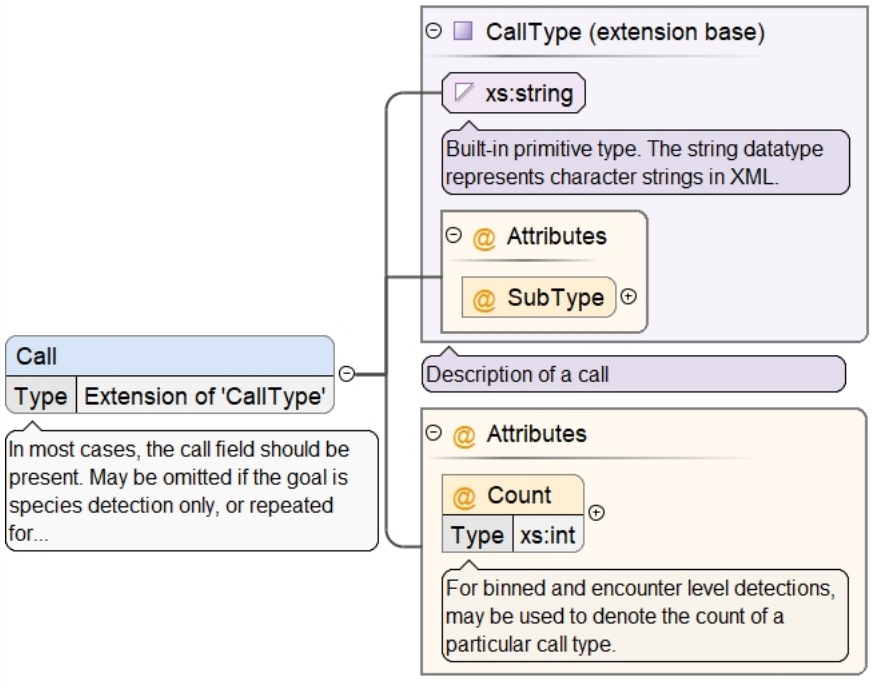
Namespace	No namespace
Annotations	How would we describe something derived from multiple channels? e.g. beamformed detection?
Diagram	
Type	xs:integer
Properties	content: simple minOccurs: 0

Source	<xs:element name="Channel" type="xs:integer" minOccurs="0"> <xs:annotation> <xs:documentation>How would we describe something derived from multiple channels? e.g. beamformed detection?</xs:documentation> </xs:annotation> </xs:element>

Element Detection / SpeciesID

Namespace	No namespace
Diagram	
Type	ns1:SpeciesIDType
Properties	content: complex
Attributes	**QName** / **Type** / **Use** **Group** / xs:string / optional
Source	<xs:element name="SpeciesID" type="SpeciesIDType"/>

Element Detection / Call

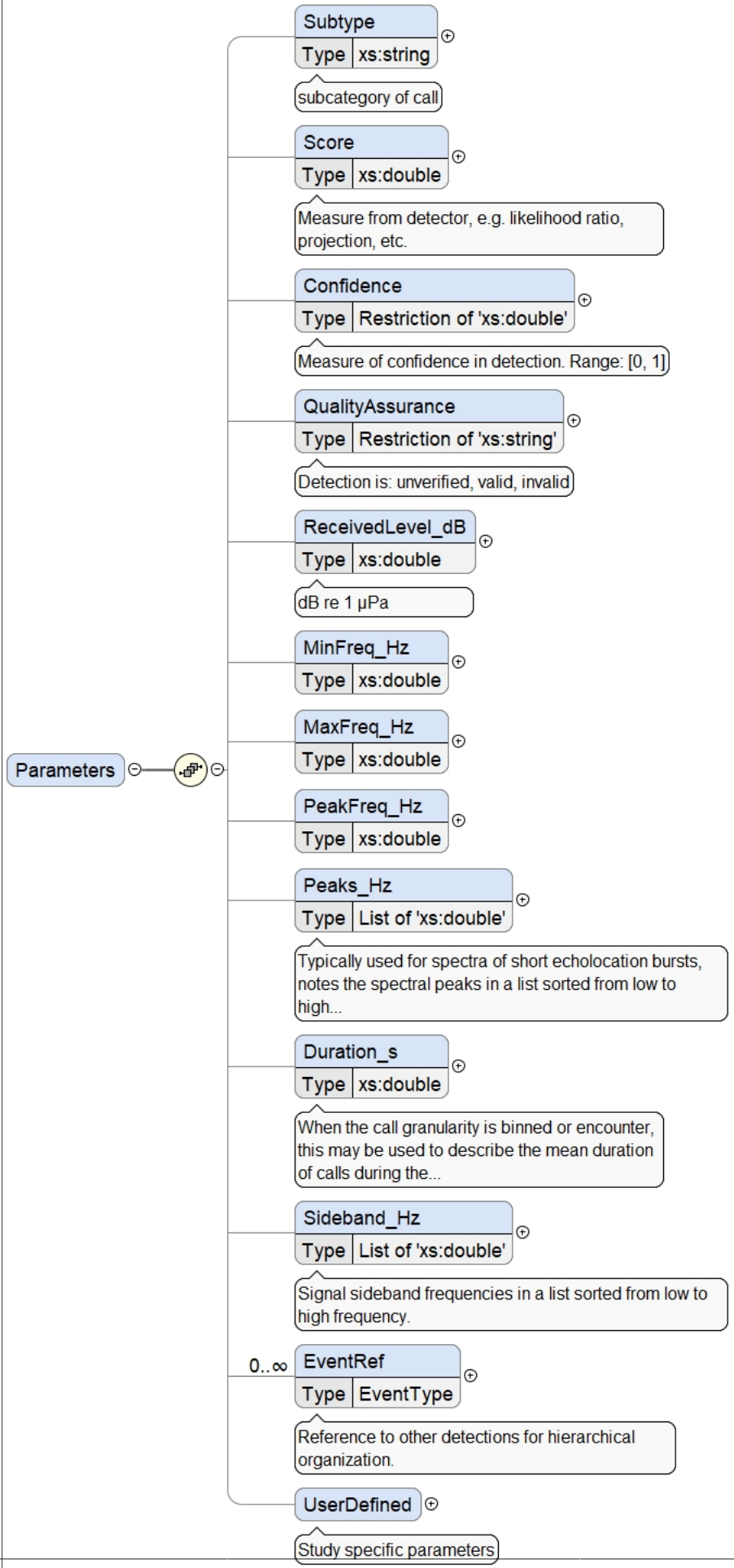
Namespace	No namespace
Annotations	In most cases, the call field should be present. May be omitted if the goal is species detection only, or repeated for multiple types of calls when the granularity effort is not "call".
Diagram	

Type	extension of ns1:CallType
Type hierarchy	• xs:string • ns1:CallType
Properties	content: complex minOccurs: 0 maxOccurs: unbounded
Attributes	**QName** — **Type**: — **Use**: **Count** — xs:int — optional For binned and encounter level detections, may be used to denote the count of a particular call type. **SubType** — xs:string — optional
Source	<xs:element name="Call" maxOccurs="unbounded" minOccurs="0"> <xs:annotation> <xs:documentation>In most cases, the call field should be present. May be omitted if the goal is species detection only, or repeated for multiple types of calls when the granularity effort is not "call".</xs:documentation> </xs:annotation> <xs:complexType> <xs:complexContent> <xs:extension base="CallType"> <xs:attribute name="Count" type="xs:int"> <xs:annotation> <xs:documentation>For binned and encounter level detections, may be used to denote the count of a particular call type.</xs:documentation> </xs:annotation> </xs:attribute> </xs:extension> </xs:complexContent> </xs:complexType> </xs:element>

Element Detection / Parameters

Namespace	No namespace

Diagram


Parameters
Subtype
Type xs:string
subcategory of call
Score
Type xs:double
Measure from detector, e.g. likelihood ratio, projection, etc.
Confidence
Type Restriction of 'xs:double'
Measure of confidence in detection. Range: [0, 1]
QualityAssurance
Type Restriction of 'xs:string'
Detection is: unverified, valid, invalid
ReceivedLevel_dB
Type xs:double
dB re 1 µPa
MinFreq_Hz
Type xs:double
MaxFreq_Hz
Type xs:double
PeakFreq_Hz
Type xs:double
Peaks_Hz
Type List of 'xs:double'
Typically used for spectra of short echolocation bursts, notes the spectral peaks in a list sorted from low to high...
Duration_s
Type xs:double
When the call granularity is binned or encounter, this may be used to describe the mean duration of calls during the...
Sideband_Hz
Type List of 'xs:double'
Signal sideband frequencies in a list sorted from low to high frequency.
0..∞
EventRef
Type EventType
Reference to other detections for hierarchical organization.
UserDefined
Study specific parameters

Properties	content: complex minOccurs: 0
Model	Subtype{0,1} , Score{0,1} , Confidence{0,1} , QualityAssurance{0,1} , ReceivedLevel_dB{0,1} , MinFreq_Hz{0,1} , MaxFreq_Hz{0,1} , PeakFreq_Hz{0,1} , Peaks_Hz{0,1} , Duration_s{0,1} , Sideband_Hz{0,1} , EventRef* , UserDefined{0,1}
Children	Confidence, Duration_s, EventRef, MaxFreq_Hz, MinFreq_Hz, PeakFreq_Hz, Peaks_Hz, QualityAssurance, ReceivedLevel_dB, Score, Sideband_Hz, Subtype, UserDefined

Instance

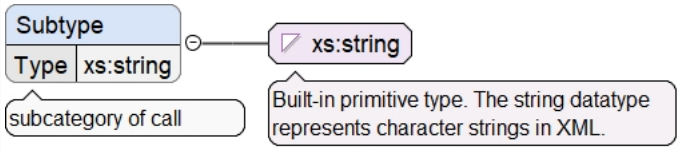
```
<Parameters>
  <Subtype>{0,1}</Subtype>
  <Score>{0,1}</Score>
  <Confidence>{0,1}</Confidence>
  <QualityAssurance>{0,1}</QualityAssurance>
  <ReceivedLevel_dB>{0,1}</ReceivedLevel_dB>
  <MinFreq_Hz>{0,1}</MinFreq_Hz>
  <MaxFreq_Hz>{0,1}</MaxFreq_Hz>
  <PeakFreq_Hz>{0,1}</PeakFreq_Hz>
  <Peaks_Hz>{0,1}</Peaks_Hz>
  <Duration_s>{0,1}</Duration_s>
  <Sideband_Hz>{0,1}</Sideband_Hz>
  <EventRef>{0,unbounded}</EventRef>
  <UserDefined>{0,1}</UserDefined>
</Parameters>
```

Source

```
<xs:element minOccurs="0" name="Parameters">
  <xs:complexType>
    <xs:sequence>
      <xs:element minOccurs="0" name="Subtype" type="xs:string">
        <xs:annotation>
          <xs:documentation>subcategory of call</xs:documentation>
        </xs:annotation>
      </xs:element>
      <xs:element minOccurs="0" name="Score" type="xs:double">
        <xs:annotation>
          <xs:documentation>Measure from detector, e.g. likelihood ratio, projection, etc.</
xs:documentation>
        </xs:annotation>
      </xs:element>
      <xs:element minOccurs="0" name="Confidence">
        <xs:annotation>
          <xs:documentation>Measure of confidence in detection. Range: [0, 1]</xs:documentation>
        </xs:annotation>
        <xs:simpleType>
          <xs:restriction base="xs:double">
            <xs:minInclusive value="0"/>
            <xs:maxInclusive value="1"/>
          </xs:restriction>
        </xs:simpleType>
      </xs:element>
      <xs:element minOccurs="0" name="QualityAssurance">
        <xs:annotation>
          <xs:documentation>Detection is: unverified, valid, invalid</xs:documentation>
        </xs:annotation>
        <xs:simpleType>
          <xs:restriction base="xs:string">
            <xs:enumeration value="unverified"/>
            <xs:enumeration value="valid"/>
            <xs:enumeration value="invalid"/>
          </xs:restriction>
        </xs:simpleType>
      </xs:element>
      <xs:element name="ReceivedLevel_dB" type="xs:double" minOccurs="0">
        <xs:annotation>
          <xs:documentation>dB re 1 µPa</xs:documentation>
        </xs:annotation>
      </xs:element>
      <xs:element minOccurs="0" name="MinFreq_Hz" type="xs:double"/>
      <xs:element minOccurs="0" name="MaxFreq_Hz" type="xs:double"/>
      <xs:element name="PeakFreq_Hz" type="xs:double" minOccurs="0"/>
      <xs:element name="Peaks_Hz" minOccurs="0">
        <xs:annotation>
          <xs:documentation>Typically used for spectra of short echolocation bursts, notes the
 spectral peaks in a list sorted from low to high frequency.</xs:documentation>
        </xs:annotation>
        <xs:simpleType>
          <xs:list itemType="xs:double"/>
        </xs:simpleType>
      </xs:element>
      <xs:element minOccurs="0" name="Duration_s" type="xs:double">
        <xs:annotation>
```

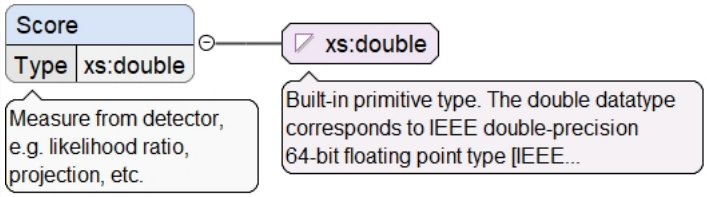
```
          <xs:documentation>When the call granularity is binned or encounter, this may be used to
 describe the mean duration of calls during the bout. As an example, at SIO we use this to track the
 mean duration of binned anthropogenic sources such as explosions.</xs:documentation>
        </xs:annotation>
      </xs:element>
      <xs:element name="Sideband_Hz" minOccurs="0">
        <xs:annotation>
          <xs:documentation>Signal sideband frequencies in a list sorted from low to high
 frequency.</xs:documentation>
        </xs:annotation>
        <xs:simpleType>
          <xs:list itemType="xs:double"/>
        </xs:simpleType>
      </xs:element>
      <xs:element maxOccurs="unbounded" minOccurs="0" name="EventRef" type="EventType">
        <xs:annotation>
          <xs:documentation>Reference to other detections for hierarchical organization.</
xs:documentation>
        </xs:annotation>
      </xs:element>
      <xs:element minOccurs="0" name="UserDefined">
        <xs:annotation>
          <xs:documentation>Study specific parameters</xs:documentation>
        </xs:annotation>
        <xs:complexType>
          <xs:sequence maxOccurs="unbounded" minOccurs="0">
            <xs:any namespace="##any" minOccurs="0" processContents="skip"/>
          </xs:sequence>
        </xs:complexType>
      </xs:element>
    </xs:sequence>
  </xs:complexType>
</xs:element>
```

Element Detection / Parameters / Subtype

Namespace	No namespace
Annotations	subcategory of call
Diagram	
Type	xs:string
Properties	content: simple minOccurs: 0

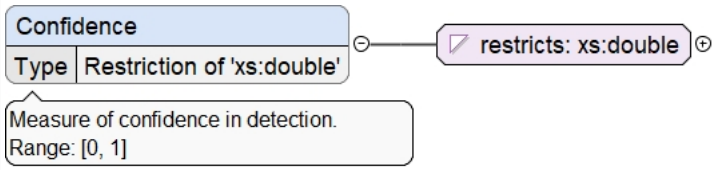
Source	`<xs:element minOccurs="0" name="Subtype" type="xs:string">`
	`  <xs:annotation>`
	`  <xs:documentation>subcategory of call</xs:documentation>`
	`  </xs:annotation>`
	`</xs:element>`

Element Detection / Parameters / Score

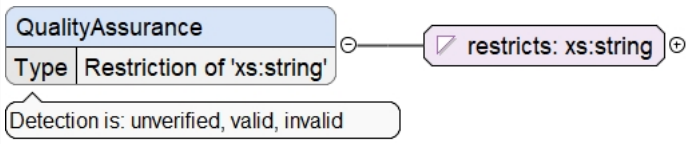
Namespace	No namespace
Annotations	Measure from detector, e.g. likelihood ratio, projection, etc.
Diagram	
Type	xs:double
Properties	content: simple minOccurs: 0
Source	`<xs:element minOccurs="0" name="Score" type="xs:double">` `  <xs:annotation>`

```
    <xs:documentation>Measure from detector, e.g. likelihood ratio, projection, etc.</
xs:documentation>
  </xs:annotation>
</xs:element>
```

Element Detection / Parameters / Confidence

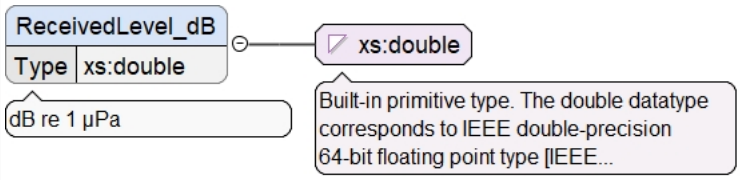
Namespace	No namespace
Annotations	Measure of confidence in detection. Range: [0, 1]
Diagram	
Type	restriction of xs:double
Properties	content: simple minOccurs: 0
Facets	maxInclusive 1 minInclusive 0
Source	<xs:element minOccurs="0" name="Confidence"> <xs:annotation> <xs:documentation>Measure of confidence in detection. Range: [0, 1]</xs:documentation> </xs:annotation> <xs:simpleType> <xs:restriction base="xs:double"> <xs:minInclusive value="0"/> <xs:maxInclusive value="1"/> </xs:restriction> </xs:simpleType> </xs:element>

Element Detection / Parameters / QualityAssurance

Namespace	No namespace
Annotations	Detection is: unverified, valid, invalid
Diagram	
Type	restriction of xs:string
Properties	content: simple minOccurs: 0
Facets	enumeration unverified enumeration valid enumeration invalid
Source	<xs:element minOccurs="0" name="QualityAssurance"> <xs:annotation> <xs:documentation>Detection is: unverified, valid, invalid</xs:documentation> </xs:annotation> <xs:simpleType> <xs:restriction base="xs:string"> <xs:enumeration value="unverified"/> <xs:enumeration value="valid"/> <xs:enumeration value="invalid"/> </xs:restriction> </xs:simpleType> </xs:element>

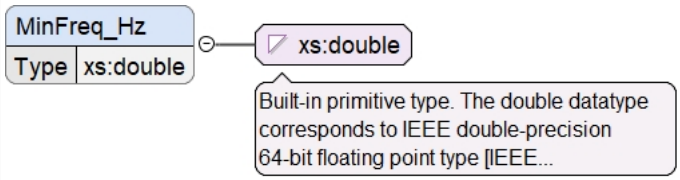
Element Detection / Parameters / ReceivedLevel_dB

Namespace	No namespace
Annotations	dB re 1 µPa

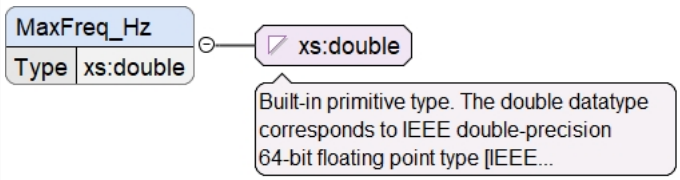
Diagram	
Type	xs:double
Properties	content: simple minOccurs: 0

Source	`<xs:element name="ReceivedLevel_dB" type="xs:double" minOccurs="0">`
	`  <xs:annotation>`
	`  <xs:documentation>dB re 1 µPa</xs:documentation>`
	`  </xs:annotation>`
	`</xs:element>`

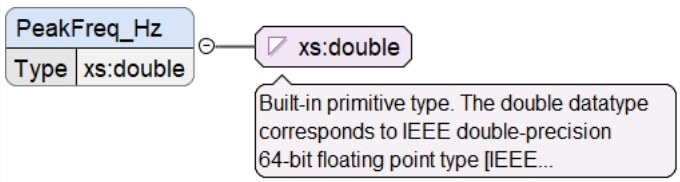
Element Detection / Parameters / MinFreq_Hz

Namespace	No namespace
Diagram	
Type	xs:double
Properties	content: simple minOccurs: 0
Source	`<xs:element minOccurs="0" name="MinFreq_Hz" type="xs:double"/>`

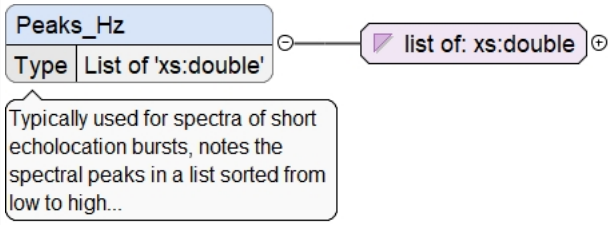
Element Detection / Parameters / MaxFreq_Hz

Namespace	No namespace
Diagram	
Type	xs:double
Properties	content: simple minOccurs: 0
Source	`<xs:element minOccurs="0" name="MaxFreq_Hz" type="xs:double"/>`

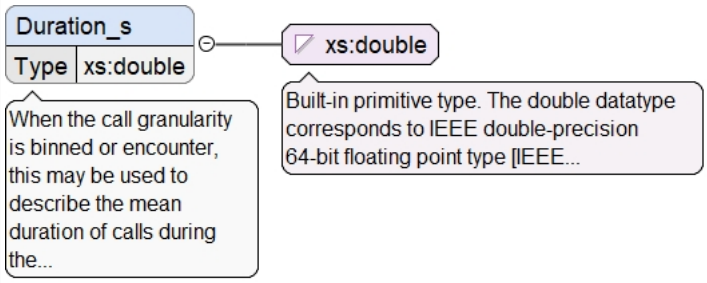
Element Detection / Parameters / PeakFreq_Hz

Namespace	No namespace
Diagram	
Type	xs:double
Properties	content: simple minOccurs: 0
Source	`<xs:element name="PeakFreq_Hz" type="xs:double" minOccurs="0"/>`

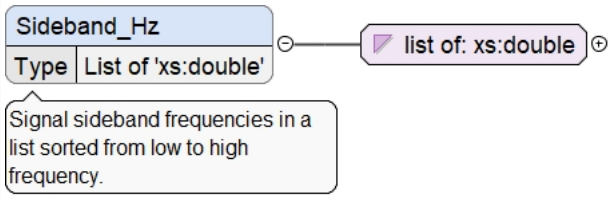
Element Detection / Parameters / Peaks_Hz

Namespace	No namespace
Annotations	Typically used for spectra of short echolocation bursts, notes the spectral peaks in a list sorted from low to high frequency.
Diagram	
Type	list of xs:double
Properties	content: simple minOccurs: 0
Source	<xs:element name="Peaks_Hz" minOccurs="0"> <xs:annotation> <xs:documentation>Typically used for spectra of short echolocation bursts, notes the spectral peaks in a list sorted from low to high frequency.</xs:documentation> </xs:annotation> <xs:simpleType> <xs:list itemType="xs:double"/> </xs:simpleType> </xs:element>

Element Detection / Parameters / Duration_s

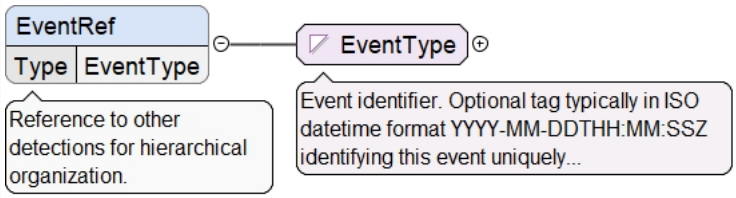
Namespace	No namespace
Annotations	When the call granularity is binned or encounter, this may be used to describe the mean duration of calls during the bout. As an example, at SIO we use this to track the mean duration of binned anthropogenic sources such as explosions.
Diagram	
Type	xs:double
Properties	content: simple minOccurs: 0
Source	<xs:element minOccurs="0" name="Duration_s" type="xs:double"> <xs:annotation> <xs:documentation>When the call granularity is binned or encounter, this may be used to describe the mean duration of calls during the bout. As an example, at SIO we use this to track the mean duration of binned anthropogenic sources such as explosions.</xs:documentation> </xs:annotation> </xs:element>

Element Detection / Parameters / Sideband_Hz

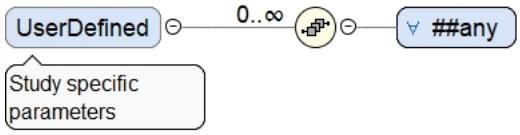
Namespace	No namespace
Annotations	Signal sideband frequencies in a list sorted from low to high frequency.
Diagram	

Type	list of xs:double
Properties	content: simple minOccurs: 0
Source	<xs:element name="Sideband_Hz" minOccurs="0"> <xs:annotation> <xs:documentation>Signal sideband frequencies in a list sorted from low to high frequency.</xs:documentation> </xs:annotation> <xs:simpleType> <xs:list itemType="xs:double"/> </xs:simpleType> </xs:element>

Element Detection / Parameters / EventRef

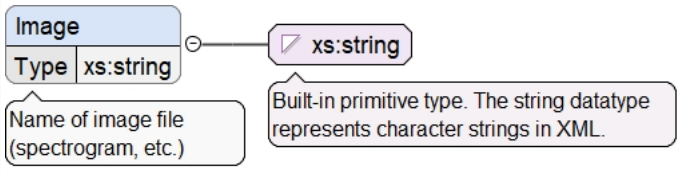
Namespace	No namespace
Annotations	Reference to other detections for hierarchical organization.
Diagram	
Type	ns1:EventType
Properties	content: simple minOccurs: 0 maxOccurs: unbounded
Source	<xs:element maxOccurs="unbounded" minOccurs="0" name="EventRef" type="EventType"> <xs:annotation> <xs:documentation>Reference to other detections for hierarchical organization.</xs:documentation> </xs:annotation> </xs:element>

Element Detection / Parameters / UserDefined

Namespace	No namespace
Annotations	Study specific parameters
Diagram	
Properties	content: complex minOccurs: 0
Model	ANY element from ANY namespace
Source	<xs:element minOccurs="0" name="UserDefined"> <xs:annotation> <xs:documentation>Study specific parameters</xs:documentation> </xs:annotation> <xs:complexType> <xs:sequence maxOccurs="unbounded" minOccurs="0"> <xs:any namespace="##any" minOccurs="0" processContents="skip"/> </xs:sequence> </xs:complexType> </xs:element>

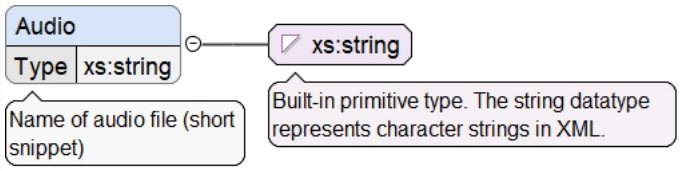
Element Detection / Image

Namespace	No namespace
Annotations	Name of image file (spectrogram, etc.)

Diagram	
Type	xs:string
Properties	content: simple minOccurs: 0

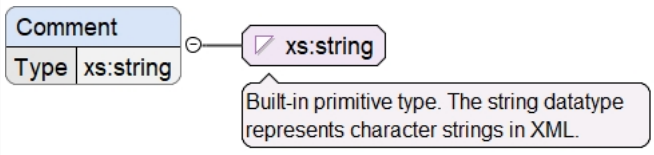
Source	`<xs:element minOccurs="0" name="Image" type="xs:string">`
	`  <xs:annotation>`
	`  <xs:documentation>Name of image file (spectrogram, etc.)</xs:documentation>`
	`  </xs:annotation>`
	`</xs:element>`

Element Detection / Audio

Namespace	No namespace
Annotations	Name of audio file (short snippet)
Diagram	
Type	xs:string
Properties	content: simple minOccurs: 0

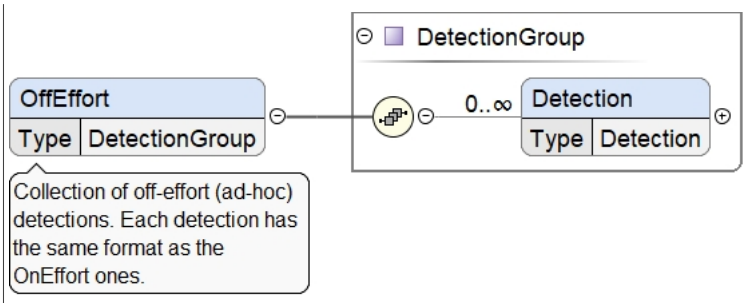
Source	`<xs:element minOccurs="0" name="Audio" type="xs:string">`
	`  <xs:annotation>`
	`  <xs:documentation>Name of audio file (short snippet)</xs:documentation>`
	`  </xs:annotation>`
	`</xs:element>`

Element Detection / Comment

Namespace	No namespace
Diagram	
Type	xs:string
Properties	content: simple minOccurs: 0
Source	`<xs:element minOccurs="0" name="Comment" type="xs:string"/>`

Element Detections / OffEffort

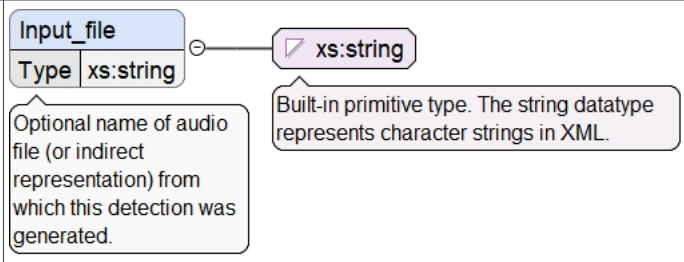
Namespace	No namespace
Annotations	Collection of off-effort (ad-hoc) detections. Each detection has the same format as the OnEffort ones.

Diagram	
Type	DetectionGroup
Properties	content: complex minOccurs: 0
Model	Detection*
Children	Detection

Instance	`<OffEffort>`
	`  <Detection>{0,unbounded}</Detection>`
	`</OffEffort>`

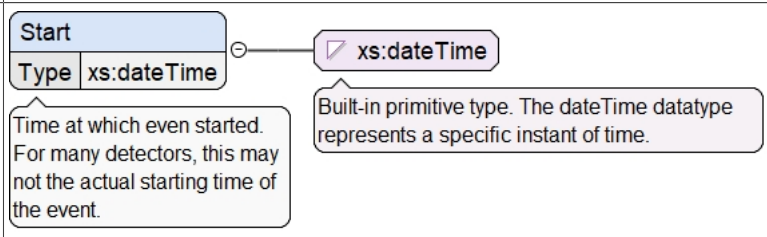
Source	`<xs:element name="OffEffort" minOccurs="0" type="DetectionGroup">`
	`  <xs:annotation>`
	`  <xs:documentation>Collection of off-effort (ad-hoc) detections. Each detection has the same format as the OnEffort ones.</xs:documentation>`
	`  </xs:annotation>`
	`</xs:element>`

Element `OffEffortDetection / Input_file`

Namespace	No namespace
Annotations	Optional name of audio file (or indirect representation) from which this detection was generated.
Diagram	
Type	xs:string
Properties	content: simple minOccurs: 0

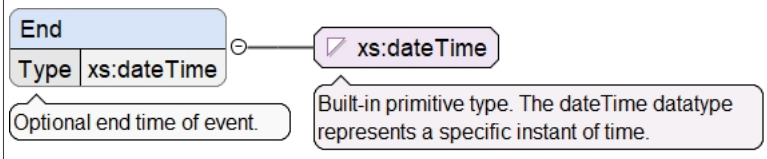
Source	`<xs:element name="Input_file" type="xs:string" minOccurs="0">`
	`  <xs:annotation>`
	`  <xs:documentation>Optional name of audio file (or indirect representation) from which this detection was generated.</xs:documentation>`
	`  </xs:annotation>`
	`</xs:element>`

Element `OffEffortDetection / Start`

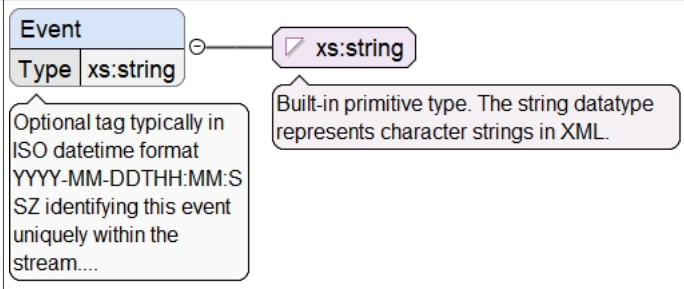
Namespace	No namespace
Annotations	Time at which even started. For many detectors, this may not the actual starting time of the event.
Diagram	
Type	xs:dateTime

Properties	content: simple
Source	<xs:element name="Start" type="xs:dateTime"> <xs:annotation> <xs:documentation>Time at which even started. For many detectors, this may not the actual starting time of the event.</xs:documentation> </xs:annotation> </xs:element>

Element OffEffortDetection / End

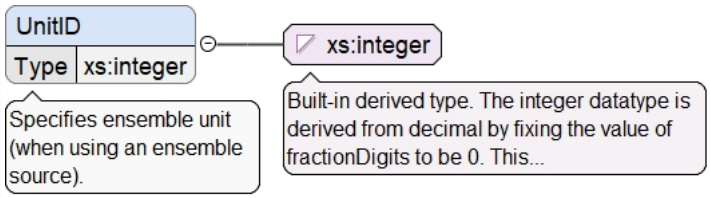
Namespace	No namespace
Annotations	Optional end time of event.
Diagram	
Type	xs:dateTime
Properties	content: simple minOccurs: 0
Source	<xs:element name="End" type="xs:dateTime" minOccurs="0"> <xs:annotation> <xs:documentation>Optional end time of event.</xs:documentation> </xs:annotation> </xs:element>

Element OffEffortDetection / Event

Namespace	No namespace
Annotations	Optional tag typically in ISO datetime format YYYY-MM-DDTHH:MM:SSZ identifying this event uniquely within the stream. For human analysts, it is typical to use the time at which the detection was made. When present, the combination of the event and attributes that uniquely identify the set of detections (or document name) must be uniqe.
Diagram	
Type	xs:string
Properties	content: simple minOccurs: 0
Source	<xs:element name="Event" minOccurs="0" type="xs:string"> <xs:annotation> <xs:documentation>Optional tag typically in ISO datetime format YYYY-MM-DDTHH:MM:SSZ identifying this event uniquely within the stream. For human analysts, it is typical to use the time at which the detection was made. When present, the combination of the event and attributes that uniquely identify the set of detections (or document name) must be uniqe.</xs:documentation> </xs:annotation> </xs:element>

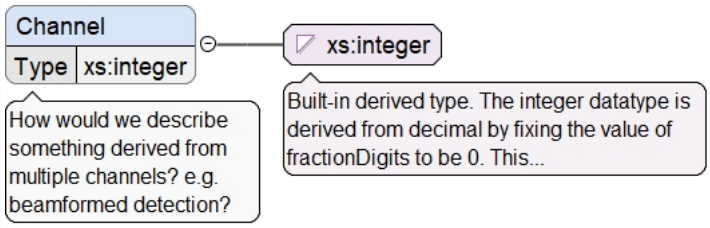
Element OffEffortDetection / UnitID

Namespace	No namespace
Annotations	Specifies ensemble unit (when using an ensemble source).

Diagram	
Type	xs:integer
Properties	content: simple minOccurs: 0

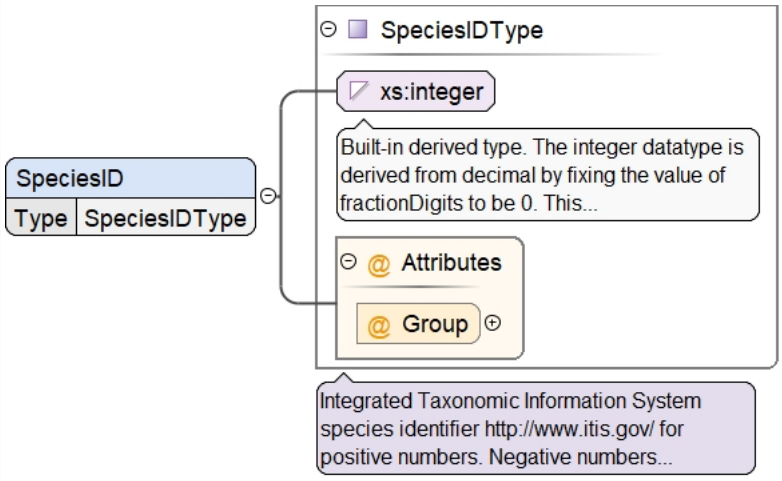
Source	`<xs:element minOccurs="0" name="UnitID" type="xs:integer">`
	`  <xs:annotation>`
	`  <xs:documentation>Specifies ensemble unit (when using an ensemble source).</xs:documentation>`
	`  </xs:annotation>`
	`</xs:element>`

Element OffEffortDetection / Channel

Namespace	No namespace
Annotations	How would we describe something derived from multiple channels? e.g. beamformed detection?
Diagram	
Type	xs:integer
Properties	content: simple minOccurs: 0

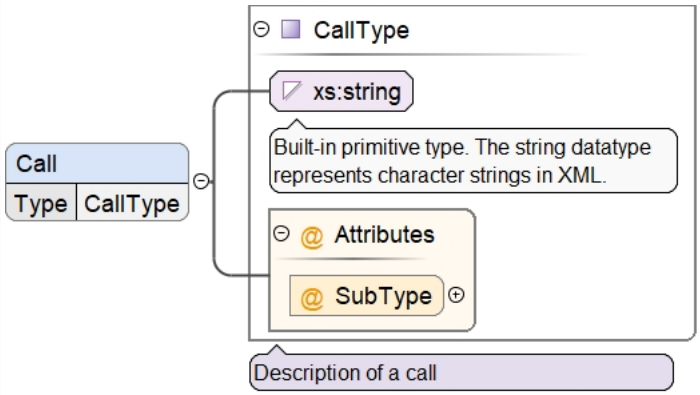
Source	`<xs:element name="Channel" type="xs:integer" minOccurs="0">`
	`  <xs:annotation>`
	`  <xs:documentation>How would we describe something derived from multiple channels? e.g.`
	`beamformed detection?</xs:documentation>`
	`  </xs:annotation>`
	`</xs:element>`

Element OffEffortDetection / SpeciesID

Namespace	No namespace
Diagram	
Type	ns1:SpeciesIDType
Properties	content: complex

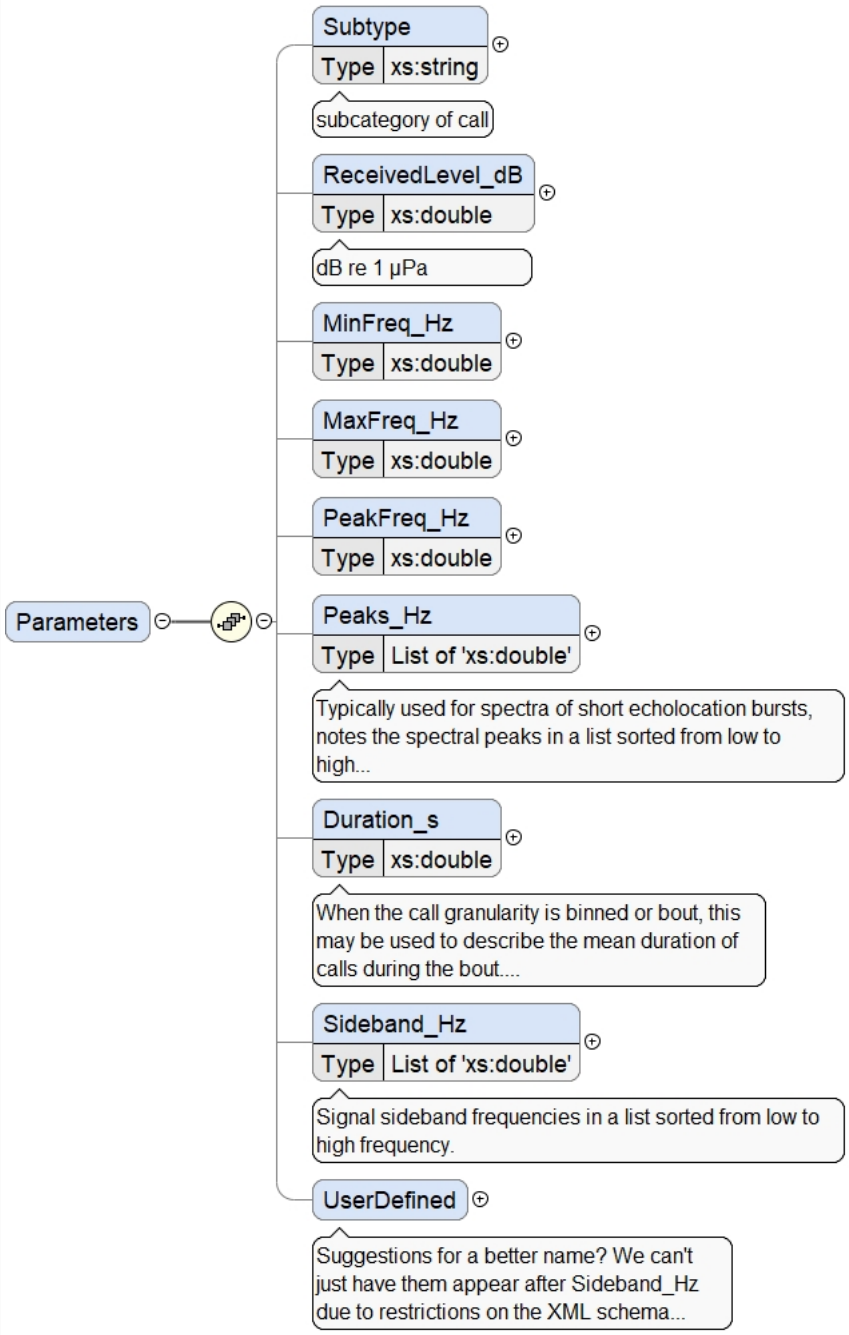
Attributes	**QName**	**Type**	**Use**	
	Group	xs:string	optional	
Source	`<xs:element name="SpeciesID" type="SpeciesIDType"/>`			

Element `OffEffortDetection / Call`

Namespace	No namespace			
Diagram				
Type	ns1:CallType			
Properties	content:	`complex`		
	minOccurs:	`0`		
Attributes	**QName**	**Type**	**Use**	
	SubType	xs:string	optional	
Source	`<xs:element name="Call" type="CallType" minOccurs="0"/>`			

Element `OffEffortDetection / Parameters`

Namespace	No namespace

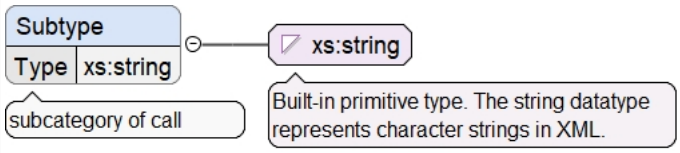
Diagram	
Properties	content: `complex` minOccurs: `0`
Model	Subtype{0,1} , ReceivedLevel_dB{0,1} , MinFreq_Hz{0,1} , MaxFreq_Hz{0,1} , PeakFreq_Hz{0,1} , Peaks_Hz{0,1} , Duration_s{0,1} , Sideband_Hz{0,1} , UserDefined{0,1}
Children	Duration_s, MaxFreq_Hz, MinFreq_Hz, PeakFreq_Hz, Peaks_Hz, ReceivedLevel_dB, Sideband_Hz, Subtype, UserDefined

Instance	`<Parameters>`
	`  <Subtype>{0,1}</Subtype>`
	`  <ReceivedLevel_dB>{0,1}</ReceivedLevel_dB>`
	`  <MinFreq_Hz>{0,1}</MinFreq_Hz>`
	`  <MaxFreq_Hz>{0,1}</MaxFreq_Hz>`
	`  <PeakFreq_Hz>{0,1}</PeakFreq_Hz>`
	`  <Peaks_Hz>{0,1}</Peaks_Hz>`
	`  <Duration_s>{0,1}</Duration_s>`
	`  <Sideband_Hz>{0,1}</Sideband_Hz>`
	`  <UserDefined>{0,1}</UserDefined>`
	`</Parameters>`

Source	`<xs:element minOccurs="0" name="Parameters">` `  <xs:complexType>`

```
    <xs:sequence>
      <xs:element minOccurs="0" name="Subtype" type="xs:string">
        <xs:annotation>
          <xs:documentation>subcategory of call</xs:documentation>
        </xs:annotation>
      </xs:element>
      <xs:element name="ReceivedLevel_dB" type="xs:double" minOccurs="0">
        <xs:annotation>
          <xs:documentation>dB re 1 µPa</xs:documentation>
        </xs:annotation>
      </xs:element>
      <xs:element minOccurs="0" name="MinFreq_Hz" type="xs:double"/>
      <xs:element minOccurs="0" name="MaxFreq_Hz" type="xs:double"/>
      <xs:element name="PeakFreq_Hz" type="xs:double" minOccurs="0"/>
      <xs:element name="Peaks_Hz" minOccurs="0">
        <xs:annotation>
          <xs:documentation>Typically used for spectra of short echolocation bursts, notes the
 spectral peaks in a list sorted from low to high frequency.</xs:documentation>
        </xs:annotation>
        <xs:simpleType>
          <xs:list itemType="xs:double"/>
        </xs:simpleType>
      </xs:element>
      <xs:element minOccurs="0" name="Duration_s" type="xs:double">
        <xs:annotation>
          <xs:documentation>When the call granularity is binned or bout, this may be used to
 describe the mean duration of calls during the bout. As an example, at SIO we use this to track the
 mean duration of binned anthropogenic sources such as explosions.</xs:documentation>
        </xs:annotation>
      </xs:element>
      <xs:element name="Sideband_Hz" minOccurs="0">
        <xs:annotation>
          <xs:documentation>Signal sideband frequencies in a list sorted from low to high
 frequency.</xs:documentation>
        </xs:annotation>
        <xs:simpleType>
          <xs:list itemType="xs:double"/>
        </xs:simpleType>
      </xs:element>
      <xs:element minOccurs="0" name="UserDefined">
        <xs:annotation>
          <xs:documentation>Suggestions for a better name? We can't just have them appear after
 Sideband_Hz due to restrictions on the XML schema :-(</xs:documentation>
        </xs:annotation>
        <xs:complexType>
          <xs:sequence>
            <xs:any namespace="##any" minOccurs="0" processContents="skip"/>
          </xs:sequence>
        </xs:complexType>
      </xs:element>
    </xs:sequence>
  </xs:complexType>
</xs:element>
```

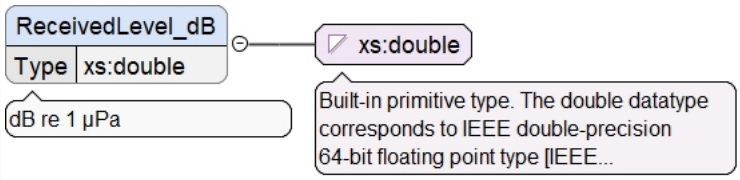
Element OffEffortDetection / Parameters / Subtype

Namespace	No namespace
Annotations	subcategory of call
Diagram	
Type	xs:string
Properties	content: simple minOccurs: 0

Source	`<xs:element minOccurs="0" name="Subtype" type="xs:string">`
	`  <xs:annotation>`
	`  <xs:documentation>subcategory of call</xs:documentation>`
	`  </xs:annotation>`
	`</xs:element>`

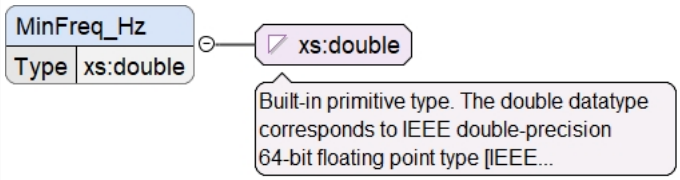
Element OffEffortDetection / Parameters / ReceivedLevel_dB

Namespace	No namespace

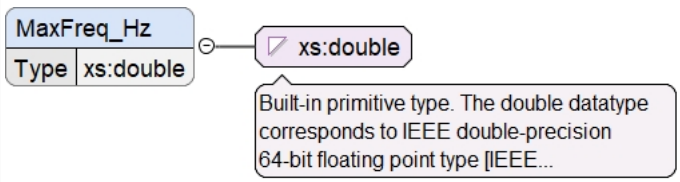
Annotations	dB re 1 µPa
Diagram	
Type	xs:double
Properties	content: simple minOccurs: 0

Source	`<xs:element name="ReceivedLevel_dB" type="xs:double" minOccurs="0">`
	`  <xs:annotation>`
	`  <xs:documentation>dB re 1 µPa</xs:documentation>`
	`  </xs:annotation>`
	`</xs:element>`

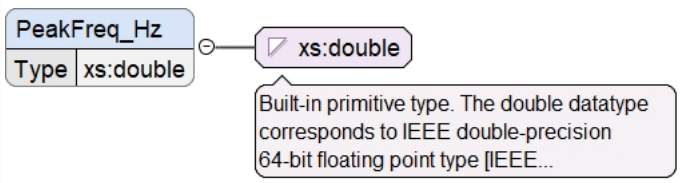
Element OffEffortDetection / Parameters / MinFreq_Hz

Namespace	No namespace
Diagram	
Type	xs:double
Properties	content: simple minOccurs: 0
Source	`<xs:element minOccurs="0" name="MinFreq_Hz" type="xs:double"/>`

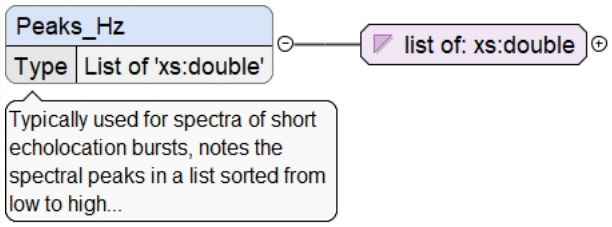
Element OffEffortDetection / Parameters / MaxFreq_Hz

Namespace	No namespace
Diagram	
Type	xs:double
Properties	content: simple minOccurs: 0
Source	`<xs:element minOccurs="0" name="MaxFreq_Hz" type="xs:double"/>`

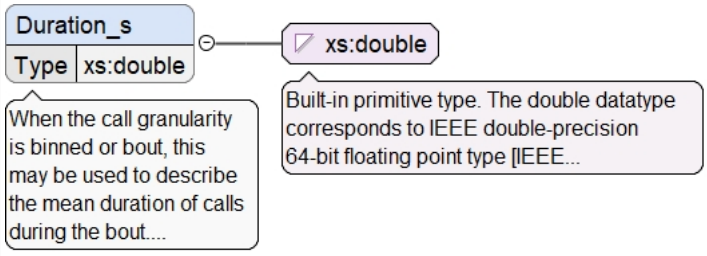
Element OffEffortDetection / Parameters / PeakFreq_Hz

Namespace	No namespace
Diagram	
Type	xs:double
Properties	content: simple minOccurs: 0
Source	`<xs:element name="PeakFreq_Hz" type="xs:double" minOccurs="0"/>`

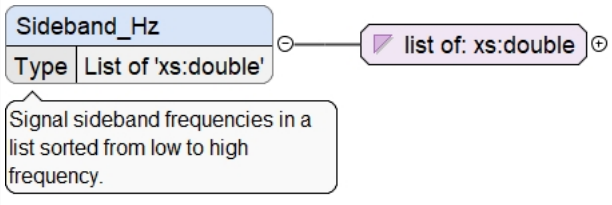
Element OffEffortDetection / Parameters / Peaks_Hz

Namespace	No namespace
Annotations	Typically used for spectra of short echolocation bursts, notes the spectral peaks in a list sorted from low to high frequency.
Diagram	
Type	list of xs:double
Properties	content: simple minOccurs: 0
Source	<xs:element name="Peaks_Hz" minOccurs="0"> <xs:annotation> <xs:documentation>Typically used for spectra of short echolocation bursts, notes the spectral peaks in a list sorted from low to high frequency.</xs:documentation> </xs:annotation> <xs:simpleType> <xs:list itemType="xs:double"/> </xs:simpleType> </xs:element>

Element OffEffortDetection / Parameters / Duration_s

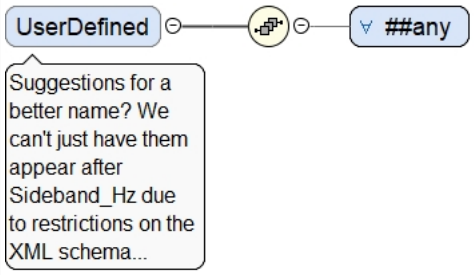
Namespace	No namespace
Annotations	When the call granularity is binned or bout, this may be used to describe the mean duration of calls during the bout. As an example, at SIO we use this to track the mean duration of binned anthropogenic sources such as explosions.
Diagram	
Type	xs:double
Properties	content: simple minOccurs: 0
Source	<xs:element minOccurs="0" name="Duration_s" type="xs:double"> <xs:annotation> <xs:documentation>When the call granularity is binned or bout, this may be used to describe the mean duration of calls during the bout. As an example, at SIO we use this to track the mean duration of binned anthropogenic sources such as explosions.</xs:documentation> </xs:annotation> </xs:element>

Element OffEffortDetection / Parameters / Sideband_Hz

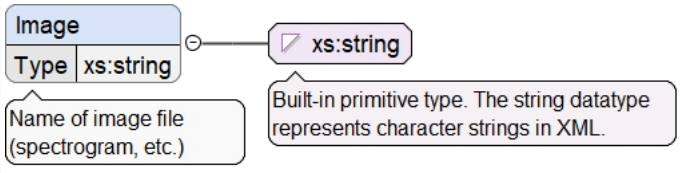
Namespace	No namespace
Annotations	Signal sideband frequencies in a list sorted from low to high frequency.
Diagram	

Type	list of xs:double
Properties	content: simple minOccurs: 0
Source	<xs:element name="Sideband_Hz" minOccurs="0"> <xs:annotation> <xs:documentation>Signal sideband frequencies in a list sorted from low to high frequency.</xs:documentation> </xs:annotation> <xs:simpleType> <xs:list itemType="xs:double"/> </xs:simpleType> </xs:element>

Element OffEffortDetection / Parameters / UserDefined

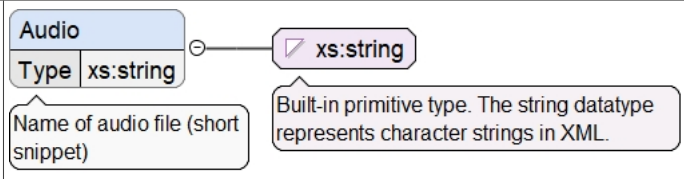
Namespace	No namespace
Annotations	Suggestions for a better name? We can't just have them appear after Sideband_Hz due to restrictions on the XML schema :-(
Diagram	
Properties	content: complex minOccurs: 0
Model	ANY element from ANY namespace
Source	<xs:element minOccurs="0" name="UserDefined"> <xs:annotation> <xs:documentation>Suggestions for a better name? We can't just have them appear after Sideband_Hz due to restrictions on the XML schema :-(</xs:documentation> </xs:annotation> <xs:complexType> <xs:sequence> <xs:any namespace="##any" minOccurs="0" processContents="skip"/> </xs:sequence> </xs:complexType> </xs:element>

Element OffEffortDetection / Image

Namespace	No namespace
Annotations	Name of image file (spectrogram, etc.)
Diagram	
Type	xs:string
Properties	content: simple minOccurs: 0
Source	<xs:element minOccurs="0" name="Image" type="xs:string"> <xs:annotation> <xs:documentation>Name of image file (spectrogram, etc.)</xs:documentation> </xs:annotation> </xs:element>

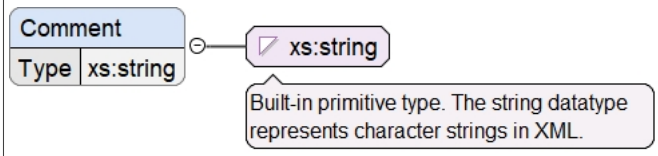
Element OffEffortDetection / Audio

Namespace	No namespace

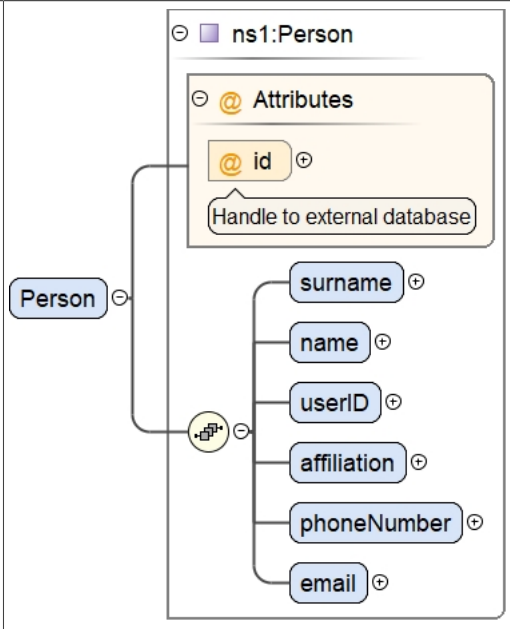
Annotations	Name of audio file (short snippet)
Diagram	
Type	xs:string
Properties	content: simple minOccurs: 0

Source	`<xs:element minOccurs="0" name="Audio" type="xs:string">`
	`  <xs:annotation>`
	`  <xs:documentation>Name of audio file (short snippet)</xs:documentation>`
	`  </xs:annotation>`
	`</xs:element>`

Element OffEffortDetection / Comment

Namespace	No namespace
Diagram	
Type	xs:string
Properties	content: simple minOccurs: 0
Source	`<xs:element minOccurs="0" name="Comment" type="xs:string"/>`

Element ns1:ContactGroup / Person

Namespace	No namespace
Diagram	
Type	ns1:Person
Properties	content: complex
Model	surname , name , userID , affiliation , phoneNumber , email
Children	affiliation, email, name, phoneNumber, surname, userID
Instance	`<Person id="">`

```
  <surname>{1,1}</surname>
  <name>{1,1}</name>
  <userID>{1,1}</userID>
  <affiliation>{1,1}</affiliation>
  <phoneNumber>{1,1}</phoneNumber>
  <email>{1,1}</email>
</Person>
```

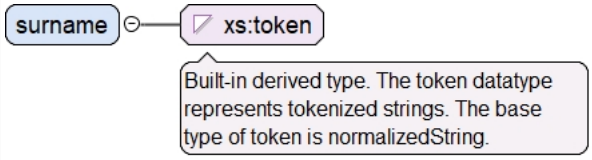
Attributes

QName	Type	Use	
id	xs:NCName	optional	
	Handle to external database		

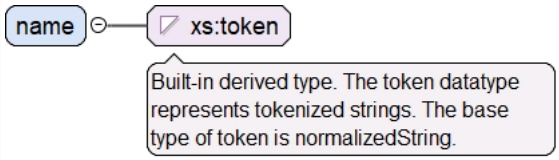
Source

```
<xs:element name="Person" type="ns1:Person"/>
```

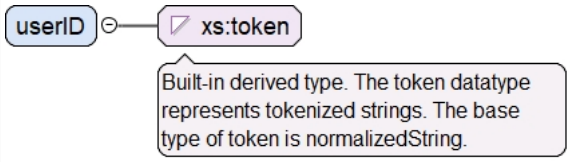
Element ns1:Person / surname

Namespace	No namespace
Diagram	
Type	xs:token
Properties	content: simple
Source	`<xs:element name="surname" type="xs:token"/>`

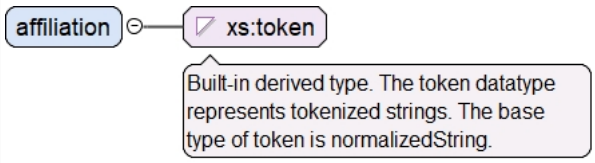
Element ns1:Person / name

Namespace	No namespace
Diagram	
Type	xs:token
Properties	content: simple
Source	`<xs:element name="name" type="xs:token"/>`

Element ns1:Person / userID

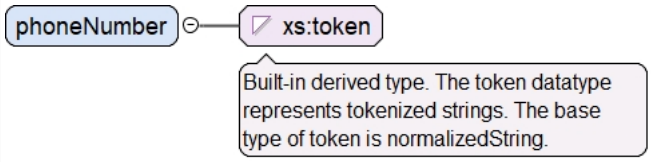
Namespace	No namespace
Diagram	
Type	xs:token
Properties	content: simple
Source	`<xs:element name="userID" type="xs:token"/>`

Element ns1:Person / affiliation

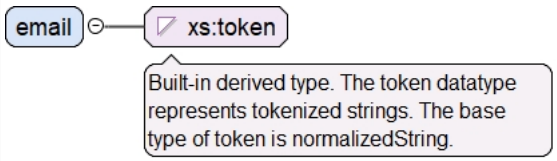
Namespace	No namespace
Diagram	

Type	xs:token
Properties	content: simple
Source	`<xs:element name="affiliation" type="xs:token"/>`

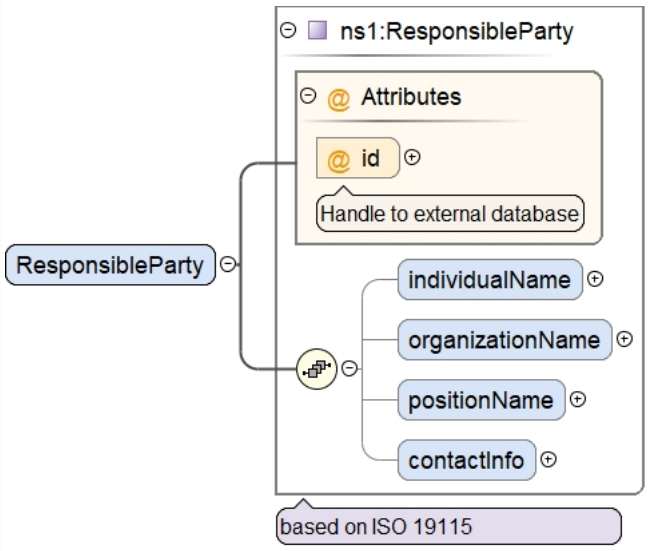
Element ns1:Person / phoneNumber

Namespace	No namespace
Diagram	
Type	xs:token
Properties	content: simple
Source	`<xs:element name="phoneNumber" type="xs:token"/>`

Element ns1:Person / email

Namespace	No namespace
Diagram	
Type	xs:token
Properties	content: simple
Source	`<xs:element name="email" type="xs:token"/>`

Element ns1:ContactGroup / ResponsibleParty

Namespace	No namespace
Diagram	
Type	ns1:ResponsibleParty
Properties	content: complex
Model	individualName{0,1} , organizationName{0,1} , positionName{0,1} , contactInfo{0,1}
Children	contactInfo, individualName, organizationName, positionName

Instance	`<ResponsibleParty id="">`
	`<individualName>{0,1}</individualName>`
	`<organizationName>{0,1}</organizationName>`

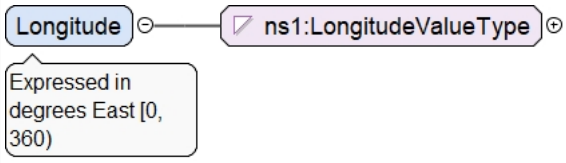
```
  <positionName>{0,1}</positionName>
  <contactInfo>{0,1}</contactInfo>
</ResponsibleParty>
```

Attributes	QName	Type	Use	
	id	xs:NCName	optional	
		Handle to external database		

Source

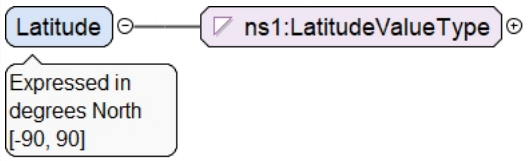
```
<xs:element name="ResponsibleParty" type="ns1:ResponsibleParty"/>
```

Element ns1:LongLat / Longitude

Namespace	No namespace
Annotations	Expressed in degrees East [0, 360)
Diagram	
Type	ns1:LongitudeValueType
Properties	content: simple
Facets	maxExclusive 360 minInclusive 0

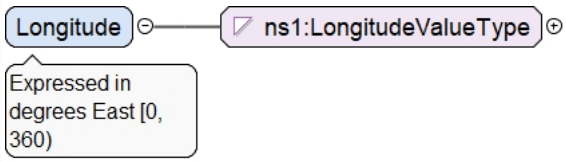
Source	`<xs:element name="Longitude" type="ns1:LongitudeValueType">`
	`  <xs:annotation>`
	`  <xs:documentation>Expressed in degrees East [0, 360)</xs:documentation>`
	`  </xs:annotation>`
	`</xs:element>`

Element ns1:LongLat / Latitude

Namespace	No namespace
Annotations	Expressed in degrees North [-90, 90]
Diagram	
Type	ns1:LatitudeValueType
Properties	content: simple
Facets	maxInclusive 90 minInclusive -90

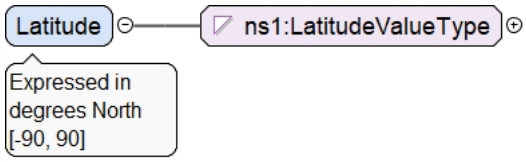
Source	`<xs:element name="Latitude" type="ns1:LatitudeValueType">`
	`  <xs:annotation>`
	`  <xs:documentation>Expressed in degrees North [-90, 90]</xs:documentation>`
	`  </xs:annotation>`
	`</xs:element>`

Element ns1:LongLat3 / Longitude

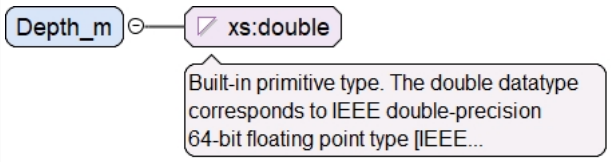
Namespace	No namespace
Annotations	Expressed in degrees East [0, 360)
Diagram	
Type	ns1:LongitudeValueType

Properties	content:	simple
Facets	maxExclusive	360
	minInclusive	0
Source	<xs:element name="Longitude" type="ns1:LongitudeValueType"> <xs:annotation> <xs:documentation>Expressed in degrees East [0, 360)</xs:documentation> </xs:annotation> </xs:element>	

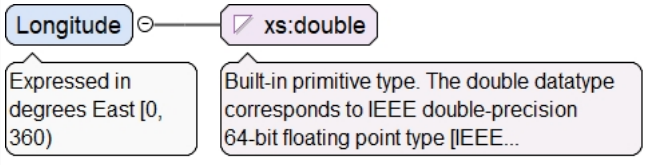
Element ns1:LongLat3 / Latitude

Namespace	No namespace
Annotations	Expressed in degrees North [-90, 90]
Diagram	
Type	ns1:LatitudeValueType
Properties	content: simple
Facets	maxInclusive 90 minInclusive -90
Source	<xs:element name="Latitude" type="ns1:LatitudeValueType"> <xs:annotation> <xs:documentation>Expressed in degrees North [-90, 90]</xs:documentation> </xs:annotation> </xs:element>

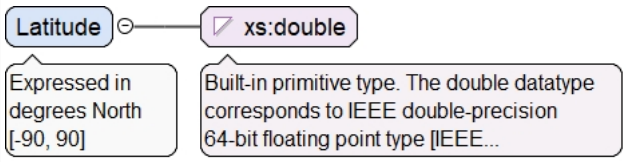
Element ns1:LongLat3 / Depth_m

Namespace	No namespace
Diagram	
Type	xs:double
Properties	content: simple
Source	<xs:element name="Depth_m" type="xs:double"/>

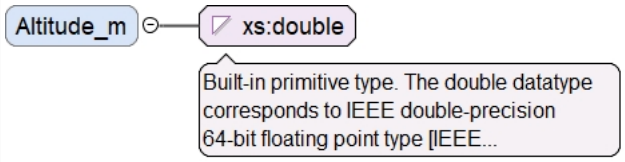
Element ns1:LongLatAlt / Longitude

Namespace	No namespace
Annotations	Expressed in degrees East [0, 360)
Diagram	
Type	xs:double
Properties	content: simple
Source	<xs:element name="Longitude" type="xs:double"> <xs:annotation> <xs:documentation>Expressed in degrees East [0, 360)</xs:documentation> </xs:annotation> </xs:element>

Element ns1:LongLatAlt / Latitude

Namespace	No namespace
Annotations	Expressed in degrees North [-90, 90]
Diagram	
Type	xs:double
Properties	content: simple
Source	<xs:element name="Latitude" type="xs:double"> <xs:annotation> <xs:documentation>Expressed in degrees North [-90, 90]</xs:documentation> </xs:annotation> </xs:element>

Element ns1:LongLatAlt / Altitude_m

Namespace	No namespace
Diagram	
Type	xs:double
Properties	content: simple minOccurs: 0 maxOccurs: 1
Source	<xs:element name="Altitude_m" type="xs:double" maxOccurs="1" minOccurs="0"/>

Attribute(s)

Attribute ns1:ResponsibleParty / @id

Namespace	No namespace
Annotations	Handle to external database
Type	xs:NCName
Properties	content: simple
Used by	Complex Type ns1:ResponsibleParty
Source	<xs:attribute name="id" type="xs:NCName"> <xs:annotation> <xs:documentation>Handle to external database</xs:documentation> </xs:annotation> </xs:attribute>

Attribute ns1:SpeciesIDType / @Group

Namespace	No namespace
Type	xs:string
Properties	content: simple
Used by	Complex Type ns1:SpeciesIDType
Source	<xs:attribute name="Group" type="xs:string"/>

Attribute ns1:CallType / @SubType

Namespace	No namespace

Type	xs:string
Properties	content: simple
Used by	Complex Type ns1:CallType
Source	`<xs:attribute name="SubType" type="xs:string"/>`

Attribute granularityType / @BinSize_m

Namespace	No namespace
Annotations	Presence/count is reported every N minutes.
Type	xs:double
Properties	content: simple
Used by	Complex Type granularityType

Source	`<xs:attribute name="BinSize_m" type="xs:double">`
	`  <xs:annotation>`
	`  <xs:documentation>Presence/count is reported every N minutes.</xs:documentation>`
	`  </xs:annotation>`
	`</xs:attribute>`

Attribute Detection / Call / @Count

Namespace	No namespace
Annotations	For binned and encounter level detections, may be used to denote the count of a particular call type.
Type	xs:int
Properties	content: simple
Used by	Element Detection/Call

Source	`<xs:attribute name="Count" type="xs:int">`
	`  <xs:annotation>`
	`  <xs:documentation>For binned and encounter level detections, may be used to denote the count of a particular call type.</xs:documentation>`
	`  </xs:annotation>`
	`</xs:attribute>`

Attribute ns1:Person / @id

Namespace	No namespace
Annotations	Handle to external database
Type	xs:NCName
Properties	content: simple
Used by	Complex Type ns1:Person

Source	`<xs:attribute name="id" type="xs:NCName">`
	`  <xs:annotation>`
	`  <xs:documentation>Handle to external database</xs:documentation>`
	`  </xs:annotation>`
	`</xs:attribute>`