# Schema documentation for EPNCore.xsd

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# Resource hierarchy:

**Legend:** *Import*, *Include*, *Redefine*, *Cycle detected*

EPNCore.xsd

- stc-v1.30.xsd
  - xlink.xsd
- VOResource-v1.0.xsd

# Namespace: "http://voparis-europlanet.obspm.fr/xml/TAPCore/EPNCore.xsd"

## Schema(s)

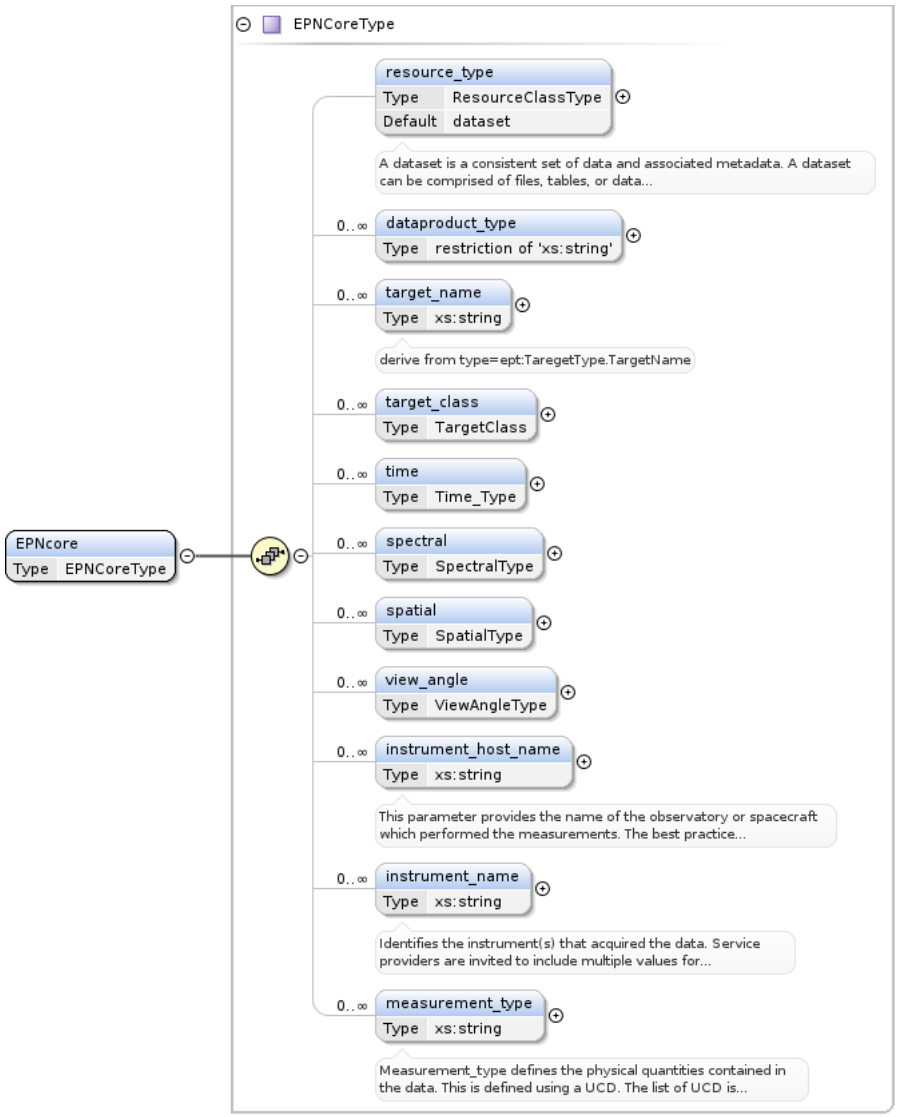
### Main schema `EPNCore.xsd`

| | |
|---|---|
| Namespace | http://voparis-europlanet.obspm.fr/xml/TAPCore/EPNCore.xsd |
| Annotations | `EPNCore schema, designed on the model of the ObsCore schema (IVOA) but addapted to planetology. To describe the resources content of Europlanet/IDIS. This DM will be used in TAP-EPN.` |
| Properties | attribute form default: `unqualified`<br>element form default: `unqualified`<br>version: `1.0` |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element(s)

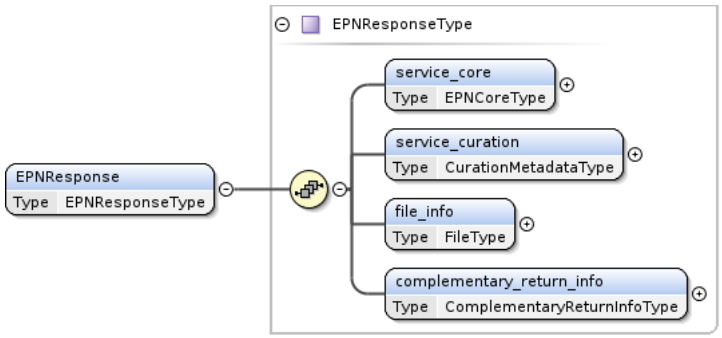
### Element `EPNcore`

| | |
|---|---|
| Namespace | http://voparis-europlanet.obspm.fr/xml/TAPCore/EPNCore.xsd |

| | |
|---|---|
| Diagram |  |
| Type | EPNCoreType |
| Properties | content: complex |
| Model | resource_type{0,1} , dataproduct_type* , target_name* , target_class* , time* , spectral* , spatial* , view_angle* , instrument_host_name* , instrument_name* , measurement_type* |
| Children | dataproduct_type, instrument_host_name, instrument_name, measurement_type, resource_type, spatial, spectral, target_class, target_name, time, view_angle |
| Instance | <EPNcore xmlns="http://voparis-europlanet.obspm.fr/xml/TAPCore/EPNCore.xsd"><br>  <resource_type>{0,1}</resource_type><br>  <dataproduct_type>{0,unbounded}</dataproduct_type><br>  <target_name>{0,unbounded}</target_name><br>  <target_class>{0,unbounded}</target_class><br>  <time>{0,unbounded}</time><br>  <spectral>{0,unbounded}</spectral><br>  <spatial>{0,unbounded}</spatial><br>  <view_angle>{0,unbounded}</view_angle><br>  <instrument_host_name>{0,unbounded}</instrument_host_name><br>  <instrument_name>{0,unbounded}</instrument_name><br>  <measurement_type>{0,unbounded}</measurement_type><br></EPNcore> |
| Source | <xs:element name="EPNcore" type="EPNCoreType"><br></xs:element> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element EPNResponse

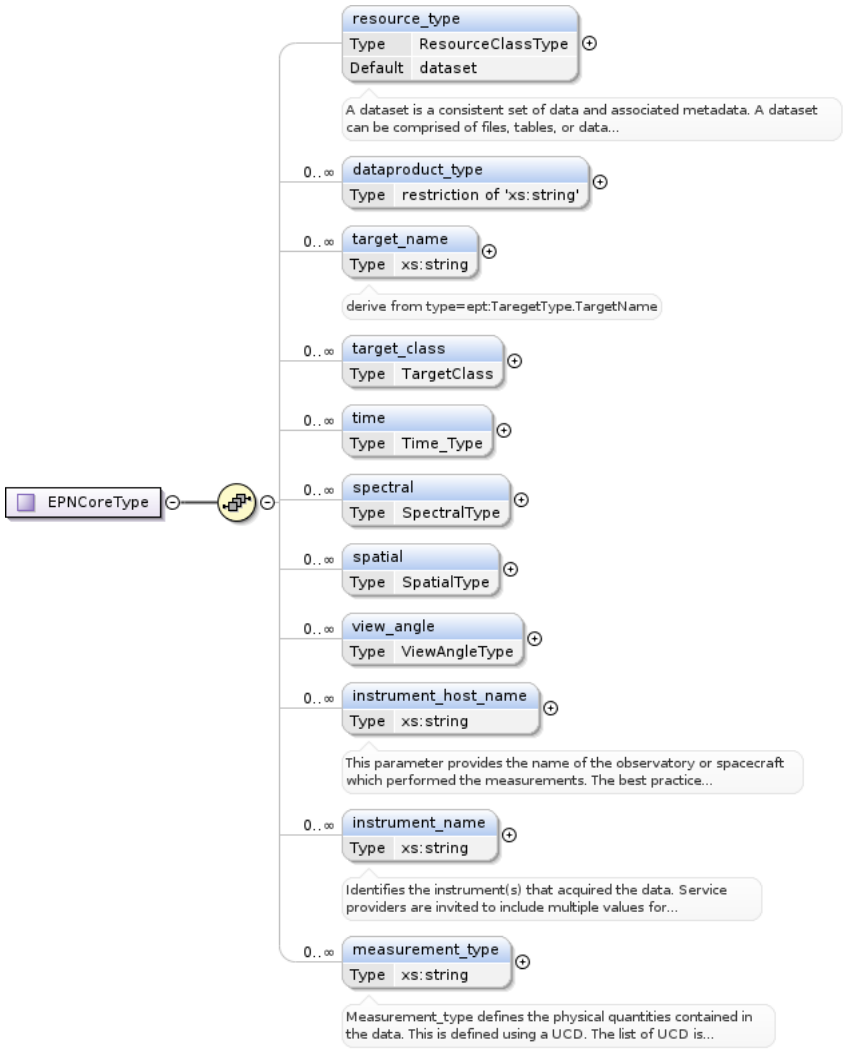
| | |
|---|---|
| Namespace | http://voparis-europlanet.obspm.fr/xml/TAPCore/EPNCore.xsd |

| | |
|---|---|
| Diagram |  |
| Type | EPNResponseType |
| Properties | content: complex |
| Model | service_core , service_curation , file_info , complementary_return_info |
| Children | complementary_return_info, file_info, service_core, service_curation |
| Instance | `<EPNResponse xmlns="http://voparis-europlanet.obspm.fr/xml/TAPCore/EPNCore.xsd">`<br>`  <service_core>{1,1}</service_core>`<br>`  <service_curation>{1,1}</service_curation>`<br>`  <file_info>{1,1}</file_info>`<br>`  <complementary_return_info>{1,1}</complementary_return_info>`<br>`</EPNResponse>` |
| Source | `<xs:element name="EPNResponse" type="EPNResponseType"/>` |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

# Complex Type(s)

## Complex Type EPNCoreType

| | |
|---|---|
| Namespace | http://voparis-europlanet.obspm.fr/xml/TAPCore/EPNCore.xsd |

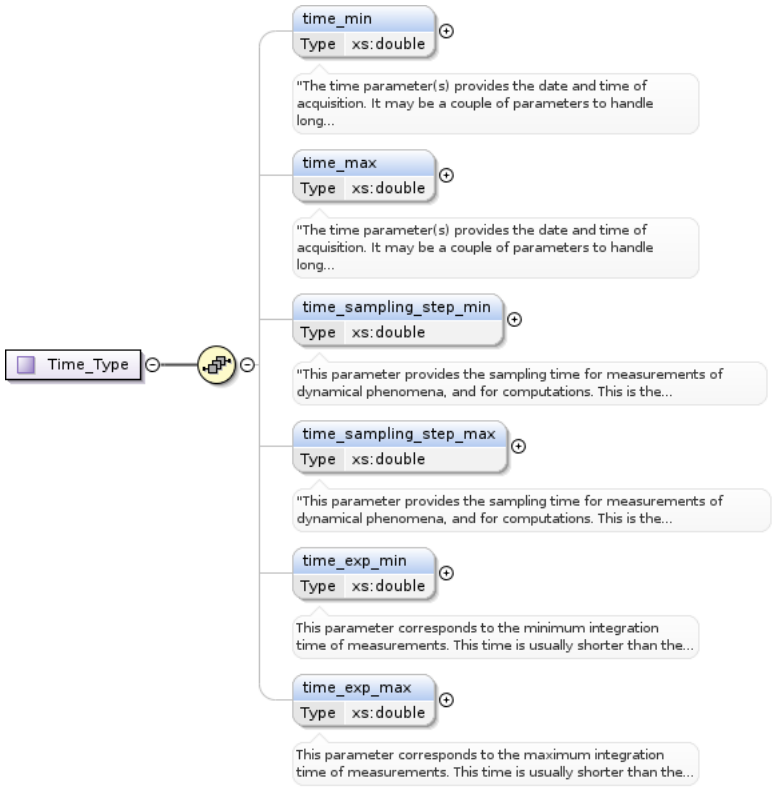
| | |
|---|---|
| Diagram |  |
| Used by | Elements EPNResponseType/service_core, EPNcore |
| Model | resource_type{0,1} , dataproduct_type* , target_name* , target_class* , time* , spectral* , spatial* , view_angle* , instrument_host_name* , instrument_name* , measurement_type* |
| Children | dataproduct_type, instrument_host_name, instrument_name, measurement_type, resource_type, spatial, spectral, target_class, target_name, time, view_angle |
| Source | `<xs:complexType name="EPNCoreType">`<br>`<xs:sequence>`<br>`<xs:element name="resource_type" type="ResourceClassType" minOccurs="0" maxOccurs="1" default="dataset">`<br>`<xs:annotation>`<br>`<xs:documentation>`A dataset is a consistent set of data and associated metadata. A dataset can be comprised of files, tables, or data computed on the fly. A granule is the smallest element reachable in a dataset: either a file, a group of associated files, a table entry, or some kind of data computed on the fly.`</xs:documentation>`<br>`</xs:annotation>`<br>`</xs:element>`<br>`<xs:element name="dataproduct_type" maxOccurs="unbounded" minOccurs="0">`<br>`<xs:simpleType>`<br>`<xs:restriction base="xs:string">`<br>`<xs:enumeration value="image">`<br>`<xs:annotation>`<br>`<xs:documentation>`associated scalar fields with two spatial axes, e.g., images with multiple color planes, from multichannel cameras for example. Maps of planetary surfaces are considered as images.`</xs:documentation>`<br>`</xs:annotation>`<br>`</xs:enumeration>`<br>`<xs:enumeration value="spectrum">`<br>`<xs:annotation>`<br>`<xs:documentation>`data product which spectral coverage is the primary attribute, e.g., a set of spectra.`</xs:documentation>`<br>`</xs:annotation>`<br>`</xs:enumeration>` |

```
          <xs:enumeration value="dynamic_spectrum">
            <xs:annotation>
              <xs:documentation>consecutive spectral measurements through time, organized
 as a time series.</xs:documentation>
            </xs:annotation>
          </xs:enumeration>
          <xs:enumeration value="spectral_cube">
            <xs:annotation>
              <xs:documentation>set of spectral measurements with 1 or 2D spatial
 coverage, e.g., imaging spectroscopy. The choice between Image and spectral_cube is
 related to the characteristics of the instrument..</xs:documentation>
            </xs:annotation>
          </xs:enumeration>
          <xs:enumeration value="profile">
            <xs:annotation>
              <xs:documentation>scalar or vectorial measurements along 1 spatial
 dimension, e.g., atmospheric profiles, atmospheric paths, sub-surface profiles…</
xs:documentation>
            </xs:annotation>
          </xs:enumeration>
          <xs:enumeration value="volume">
            <xs:annotation>
              <xs:documentation>other measurements with 3 spatial dimensions, e.g.,
 internal or atmospheric structures.</xs:documentation>
            </xs:annotation>
          </xs:enumeration>
          <xs:enumeration value="movie">
            <xs:annotation>
              <xs:documentation>sets of chronological 2D spatial measurements</
xs:documentation>
            </xs:annotation>
          </xs:enumeration>
          <xs:enumeration value="cube">
            <xs:annotation>
              <xs:documentation>multidimensional data with 3 or more axes, e.g., all
 that is not described by other 3D data types such as spectral cubes or volume.</
xs:documentation>
            </xs:annotation>
          </xs:enumeration>
          <xs:enumeration value="time_series">
            <xs:annotation>
              <xs:documentation>measurements organized primarily as a function of time
 (with exception of dynamical spectra). A Spacecraft dust detector measurement is a
 typical example of a time series.</xs:documentation>
            </xs:annotation>
          </xs:enumeration>
          <xs:enumeration value="catalog">
            <xs:annotation>
              <xs:documentation>can be a list of events, a catalog of object parameters, a
 list of features.... E.g., a list of asteroid properties. Can also be a single element.</
xs:documentation>
            </xs:annotation>
          </xs:enumeration>
          <xs:enumeration value="spatial_vector">
            <xs:annotation>
              <xs:documentation>list of summit coordinates defining a vector, e.g., vector
 information from a GIS, spatial footprints…</xs:documentation>
            </xs:annotation>
          </xs:enumeration>
        </xs:restriction>
      </xs:simpleType>
    </xs:element>
    <xs:element name="target_name" maxOccurs="unbounded" minOccurs="0" type="xs:string">
      <xs:annotation>
        <xs:documentation>derive from type=ept:TaregetType.TargetName</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element maxOccurs="unbounded" minOccurs="0" name="target_class"
 type="TargetClass">
    </xs:element>
    <xs:element maxOccurs="unbounded" minOccurs="0" name="time" type="Time_Type">
    </xs:element>
    <xs:element name="spectral" minOccurs="0" maxOccurs="unbounded" type="SpectralType"/>
    <xs:element name="spatial" minOccurs="0" maxOccurs="unbounded" type="SpatialType"/>
    <xs:element name="view_angle" minOccurs="0" maxOccurs="unbounded"
 type="ViewAngleType"/>
    <xs:element name="instrument_host_name" minOccurs="0" maxOccurs="unbounded"
 type="xs:string">
      <xs:annotation>
        <xs:documentation>This parameter provides the name of the observatory or
 spacecraft which performed the measurements. The best practice is to use IAU observatory
 codes for ground-based observations: http://www.minorplanetcenter.net/iau/lists/
ObsCodesF.html Concerning space-borne data, SPICE clearly defines ID for space mission
```

```
names: http://www-int.stsci.edu/~sontag/spicedocs/req/naif_ids.html and the PDS
dictionary defines values for mission names</xs:documentation>
     </xs:annotation>
   </xs:element>
   <xs:element name="instrument_name" minOccurs="0" maxOccurs="unbounded"
type="xs:string">
     <xs:annotation>
       <xs:documentation>Identifies the instrument(s) that acquired the data. Service
providers are invited to include multiple values for instrument name, e.g., complete name
+ usual acronym. This will allow queries on either "VISIBLE AND INFRARED THERMAL IMAGING
SPECTROMETER" or VIRTIS to produce the same reply.</xs:documentation>
     </xs:annotation>
   </xs:element>
   <xs:element name="measurement_type" minOccurs="0" maxOccurs="unbounded"
type="xs:string">
     <xs:annotation>
       <xs:documentation>Measurement_type defines the physical quantities contained
in the data. This is defined using a UCD. The list of UCD is related to all quantities
included in the service, not only those used for the data in the idis_core table.
The provider should use the UCD list from IVOA and extend it only if necessary.</
xs:documentation>
     </xs:annotation>
   </xs:element>
  </xs:sequence>
</xs:complexType>
```

| | |
|---|---|
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Complex Type `Time_Type`

| | |
|---|---|
| Namespace | http://voparis-europlanet.obspm.fr/xml/TAPCore/EPNCore.xsd |
| Diagram |   |
| Used by | Element EPNCoreType/time |
| Model | time_min{0,1} , time_max{0,1} , time_sampling_step_min{0,1} , time_sampling_step_max{0,1} , time_exp_min{0,1} , time_exp_max{0,1} |
| Children | time_exp_max, time_exp_min, time_max, time_min, time_sampling_step_max, time_sampling_step_min |
| Source | |

```
<xs:complexType name="Time_Type">
  <xs:sequence>
    <xs:element name="time_min" minOccurs="0" maxOccurs="1" type="xs:double">
      <xs:annotation>
        <xs:documentation>"The time parameter(s) provides the date and time of
acquisition. It may be a couple of parameters to handle long periods in some datasets.
This parameter is provided in Julian days, expressed as a double precision float.
Although ObsCore uses Modified JD, EPNCore uses JD to avoid ambiguity with time origin.
```

```
 With double precision floats, the accuracy is on the order of 1 ms. Whenever time
 is defined by a single parameter, both time_min and time_max contain the same "</
xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="time_max" minOccurs="0" maxOccurs="1" type="xs:double">
      <xs:annotation>
        <xs:documentation>"The time parameter(s) provides the date and time of
 acquisition. It may be a couple of parameters to handle long periods in some datasets.
 This parameter is provided in Julian days, expressed as a double precision float.
 Although ObsCore uses Modified JD, EPNCore uses JD to avoid ambiguity with time origin.
 With double precision floats, the accuracy is on the order of 1 ms. Whenever time is
 defined by a single parameter, both t_min and t_max contain the same "</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element minOccurs="0" maxOccurs="1" name="time_sampling_step_min"
 type="xs:double">
      <xs:annotation>
        <xs:documentation>"This parameter provides the sampling time for measurements
 of dynamical phenomena, and for computations. This is the time between 2 successive
 measurements/data. This may be a query parameter e.g. for ephemeris computations.
 expressed in second "</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element minOccurs="0" maxOccurs="1" name="time_sampling_step_max"
 type="xs:double">
      <xs:annotation>
        <xs:documentation>"This parameter provides the sampling time for measurements
 of dynamical phenomena, and for computations. This is the time between 2 successive
 measurements/data. This may be a query parameter e.g. for ephemeris computations.
 expressed in second "</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="time_exp_min" minOccurs="0" maxOccurs="1" type="xs:double">
      <xs:annotation>
        <xs:documentation>This parameter corresponds to the minimum integration time
 of measurements. This time is usually shorter than the time_sampling_step (if both are
 present).</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="time_exp_max" minOccurs="0" maxOccurs="1" type="xs:double">
      <xs:annotation>
        <xs:documentation>This parameter corresponds to the maximum integration time
 of measurements. This time is usually shorter than the time_sampling_step (if both are
 present).</xs:documentation>
      </xs:annotation>
    </xs:element>
  </xs:sequence>
</xs:complexType>
```

| | |
|---|---|
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Complex Type `SpectralType`

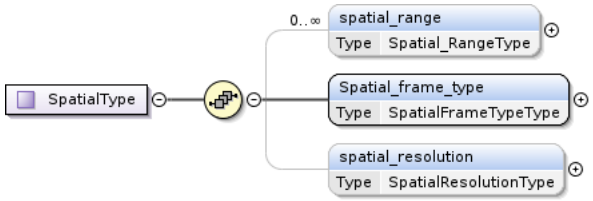
| | |
|---|---|
| Namespace | http://voparis-europlanet.obspm.fr/xml/TAPCore/EPNCore.xsd |

| | |
|---|---|
| Diagram |  |
| Used by | Element EPNCoreType/spectral |
| Model | spectral_range_min* , spectral_range_max* , spectral_sampling_step_min* , spectral_sampling_step_max* , spectral_resolution_min* , spectral_resolution_max* |
| Children | spectral_range_max, spectral_range_min, spectral_resolution_max, spectral_resolution_min, spectral_sampling_step_max, spectral_sampling_step_min |
| Source | `<xs:complexType name="SpectralType">`<br>`<xs:sequence>`<br>`<xs:element name="spectral_range_min" minOccurs="0" maxOccurs="unbounded" type="xs:double">`<br>`<xs:annotation>`<br>`<xs:documentation>`The spectral_range is expressed on a frequency in Hertz. It defines the lower bounds of the spectral domain where data have intersection with the requested spectral range.`</xs:documentation>`<br>`</xs:annotation>`<br>`</xs:element>`<br>`<xs:element name="spectral_range_max" minOccurs="0" maxOccurs="unbounded" type="xs:double">`<br>`<xs:annotation>`<br>`<xs:documentation>`The spectral_range is expressed on a frequency in Hertz. It defines the upper bounds of the spectral domain where data have intersection with the requested spectral range.`</xs:documentation>`<br>`</xs:annotation>`<br>`</xs:element>`<br>`<xs:element name="spectral_sampling_step_min" minOccurs="0" maxOccurs="unbounded" type="xs:double">`<br>`<xs:annotation>`<br>`<xs:documentation>`The spectral_sampling_step is the spectral separation (counted in Hz) between the centers of two adjacent filters or channels). Min is the lower level. This is mostly intended to provide an order of magnitude, e.g. to distinguish between grating spectrometers and Fourier spectrometers, or observations related to surfaces or atmospheres.`</xs:documentation>`<br>`</xs:annotation>`<br>`</xs:element>`<br>`<xs:element name="spectral_sampling_step_max" minOccurs="0" maxOccurs="unbounded" type="xs:double">`<br>`<xs:annotation>`<br>`<xs:documentation>`The spectral_sampling_step is the spectral separation (counted in Hz) between the centers of two adjacent filters or channels). Min is the upper level. This is mostly intended to provide an order of magnitude, e.g. to distinguish between grating spectrometers and Fourier spectrometers, or observations related to surfaces or atmospheres.`</xs:documentation>`<br>`</xs:annotation>`<br>`</xs:element>`<br>`<xs:element name="spectral_resolution_min" minOccurs="0" maxOccurs="unbounded" type="xs:double">` |

```
      <xs:annotation>
        <xs:documentation>The spectral_resolution corresponds to the spectral bandwidth
 used for the measurement. In case of filter camera this is the filter bandwidth; in
 case of spectrometer this is the spectral resolution. This is mostly intended to provide
 an order of magnitude, e.g. to distinguish between grating spectrometers and filter
 cameras.. Min is the lower level.</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="spectral_resolution_max" minOccurs="0" maxOccurs="unbounded"
 type="xs:double">
      <xs:annotation>
        <xs:documentation>The spectral_resolution corresponds to the spectral bandwidth
 used for the measurement. In case of filter camera this is the filter bandwidth; in
 case of spectrometer this is the spectral resolution. This is mostly intended to provide
 an order of magnitude, e.g. to distinguish between grating spectrometers and filter
 cameras.. Max is the upper level.</xs:documentation>
      </xs:annotation>
    </xs:element>
  </xs:sequence>
</xs:complexType>
```

| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |
|---|---|

## Complex Type `SpatialType`

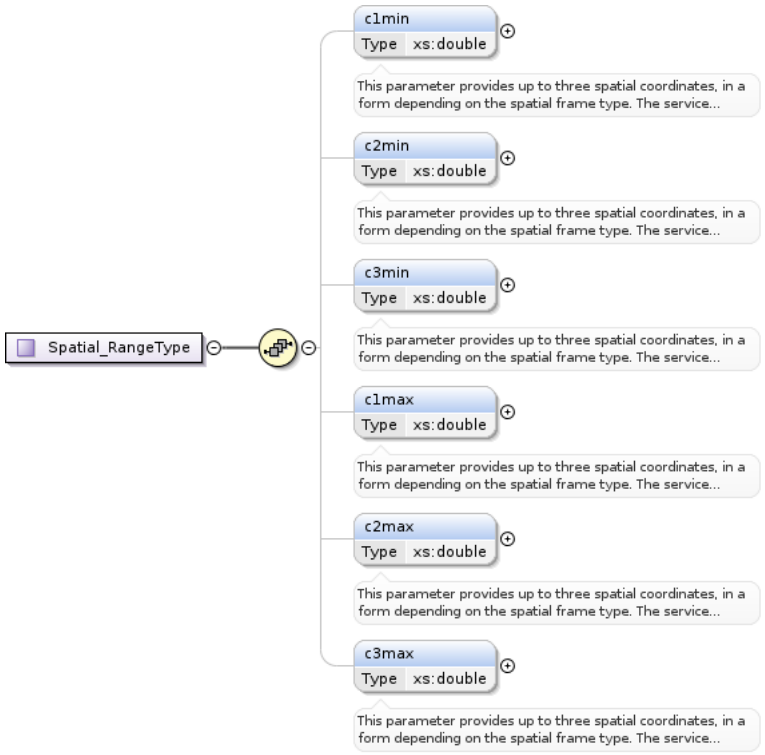
| Namespace | http://voparis-europlanet.obspm.fr/xml/TAPCore/EPNCore.xsd |
|---|---|
| Diagram |  |
| Used by | Element EPNCoreType/spatial |
| Model | spatial_range* , Spatial_frame_type , spatial_resolution{0,1} |
| Children | Spatial_frame_type, spatial_range, spatial_resolution |
| Source | |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |



```
<xs:complexType name="SpatialType">
  <xs:sequence>
    <xs:element name="spatial_range" minOccurs="0" maxOccurs="unbounded"
 type="Spatial_RangeType">
    </xs:element>
    <xs:element name="Spatial_frame_type" minOccurs="1" maxOccurs="1"
 type="SpatialFrameTypeType">
    </xs:element>
    <xs:element name="spatial_resolution" minOccurs="0" maxOccurs="1"
 type="SpatialResolutionType"/>
  </xs:sequence>
</xs:complexType>
```

## Complex Type `Spatial_RangeType`

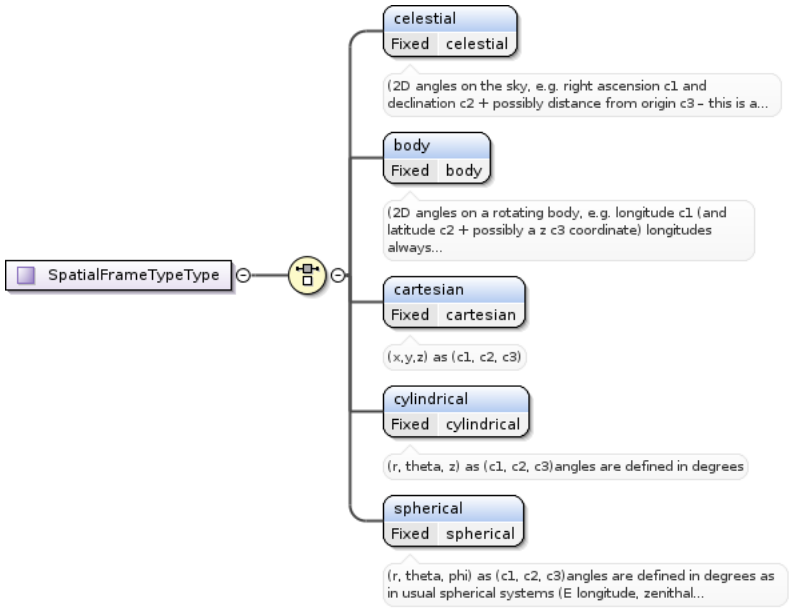
| Namespace | http://voparis-europlanet.obspm.fr/xml/TAPCore/EPNCore.xsd |
|---|---|

| | |
|---|---|
| Diagram |  |
| Used by | Element SpatialType/spatial_range |
| Model | c1min{0,1} , c2min{0,1} , c3min{0,1} , c1max{0,1} , c2max{0,1} , c3max{0,1} |
| Children | c1max, c1min, c2max, c2min, c3max, c3min |
| Source | `<xs:complexType name="Spatial_RangeType">`<br>`  <xs:sequence>`<br>`  <xs:element name="c1min" minOccurs="0" maxOccurs="1" type="xs:double">`<br>`  <xs:annotation>`<br>`  <xs:documentation>This parameter provides up to three spatial coordinates, in a form depending on the spatial frame type. The service should handle three dimensions, even if the third one is set to NULL.</xs:documentation>`<br>`  </xs:annotation>`<br>`  </xs:element>`<br>`  <xs:element name="c2min" minOccurs="0" maxOccurs="1" type="xs:double">`<br>`  <xs:annotation>`<br>`  <xs:documentation>This parameter provides up to three spatial coordinates, in a form depending on the spatial frame type. The service should handle three dimensions, even if the third one is set to NULL.</xs:documentation>`<br>`  </xs:annotation>`<br>`  </xs:element>`<br>`  <xs:element name="c3min" minOccurs="0" maxOccurs="1" type="xs:double">`<br>`  <xs:annotation>`<br>`  <xs:documentation>This parameter provides up to three spatial coordinates, in a form depending on the spatial frame type. The service should handle three dimensions, even if the third one is set to NULL.</xs:documentation>`<br>`  </xs:annotation>`<br>`  </xs:element>`<br>`  <xs:element name="c1max" minOccurs="0" maxOccurs="1" type="xs:double">`<br>`  <xs:annotation>`<br>`  <xs:documentation>This parameter provides up to three spatial coordinates, in a form depending on the spatial frame type. The service should handle three dimensions, even if the third one is set to NULL.</xs:documentation>`<br>`  </xs:annotation>`<br>`  </xs:element>`<br>`  <xs:element name="c2max" minOccurs="0" maxOccurs="1" type="xs:double">`<br>`  <xs:annotation>`<br>`  <xs:documentation>This parameter provides up to three spatial coordinates, in a form depending on the spatial frame type. The service should handle three dimensions, even if the third one is set to NULL.</xs:documentation>`<br>`  </xs:annotation>`<br>`  </xs:element>`<br>`  <xs:element name="c3max" minOccurs="0" maxOccurs="1" type="xs:double">`<br>`  <xs:annotation>`<br>`  <xs:documentation>This parameter provides up to three spatial coordinates, in a form depending on the spatial frame type. The service should handle three dimensions, even if the third one is set to NULL.</xs:documentation>` |

```
      </xs:annotation>
    </xs:element>
  </xs:sequence>
</xs:complexType>
```

| | |
|---|---|
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Complex Type `SpatialFrameTypeType`

| | |
|---|---|
| Namespace | http://voparis-europlanet.obspm.fr/xml/TAPCore/EPNCore.xsd |
| Diagram |  |
| Used by | Element SpatialType/Spatial_frame_type |
| Model | celestial \| body \| cartesian \| cylindrical \| spherical |
| Children | body, cartesian, celestial, cylindrical, spherical |

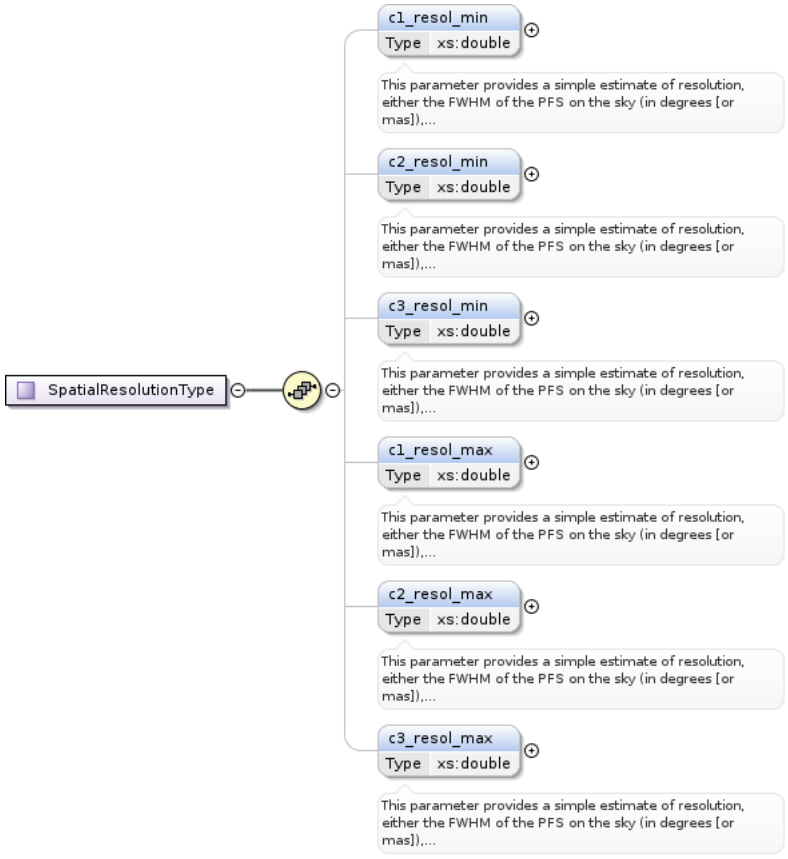


Source

```
<xs:complexType name="SpatialFrameTypeType">
  <xs:choice>
    <xs:element name="celestial" fixed="celestial">
      <xs:annotation>
        <xs:documentation>(2D angles on the sky, e.g. right ascension c1 and declination
 c2 + possibly distance from origin c3 – this is a special case of spherical frame),</
xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="body" fixed="body">
      <xs:annotation>
        <xs:documentation>(2D angles on a rotating body, e.g. longitude c1 (and latitude
 c2 + possibly a z c3 coordinate) longitudes always increase eastward, the Z coordinate
 can be the distance counted either from the reference surface or from the body center,
 TBC (frames are related to body centers, but a surface reference is required for
 atmospheric structure)</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="cartesian" fixed="cartesian">
      <xs:annotation>
        <xs:documentation>(x,y,z) as (c1, c2, c3)</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="cylindrical" fixed="cylindrical">
      <xs:annotation>
        <xs:documentation>(r, theta, z) as (c1, c2, c3)angles are defined in degrees</
xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="spherical" fixed="spherical">
      <xs:annotation>
        <xs:documentation>(r, theta, phi) as (c1, c2, c3)angles are defined in degrees
 as in usual spherical systems (E longitude, zenithal angle). If related to the sky,
 “celestial” coordinates with RA/Dec must be used.</xs:documentation>
      </xs:annotation>
    </xs:element>
  </xs:choice>
</xs:complexType>
```

| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |
|---|---|

## Complex Type `SpatialResolutionType`

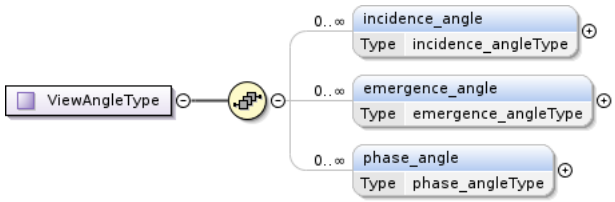
| Namespace | http://voparis-europlanet.obspm.fr/xml/TAPCore/EPNCore.xsd |
|---|---|
| Diagram |  |
| Used by | Element SpatialType/spatial_resolution |
| Model | c1_resol_min{0,1} , c2_resol_min{0,1} , c3_resol_min{0,1} , c1_resol_max{0,1} , c2_resol_max{0,1} , c3_resol_max{0,1} |
| Children | c1_resol_max, c1_resol_min, c2_resol_max, c2_resol_min, c3_resol_max, c3_resol_min |
| Source | |

```
<xs:complexType name="SpatialResolutionType">
  <xs:sequence>
    <xs:element name="c1_resol_min" minOccurs="0" maxOccurs="1" type="xs:double">
      <xs:annotation>
        <xs:documentation>This parameter provides a simple estimate of resolution, either
 the FWHM of the PFS on the sky (in degrees [or mas]), or the pixel size on a surface (in
 km [or m]), depending on spatial_frame_type.</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="c2_resol_min" minOccurs="0" maxOccurs="1" type="xs:double">
      <xs:annotation>
        <xs:documentation>This parameter provides a simple estimate of resolution, either
 the FWHM of the PFS on the sky (in degrees [or mas]), or the pixel size on a surface (in
 km [or m]), depending on spatial_frame_type.</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="c3_resol_min" minOccurs="0" maxOccurs="1" type="xs:double">
      <xs:annotation>
        <xs:documentation>This parameter provides a simple estimate of resolution, either
 the FWHM of the PFS on the sky (in degrees [or mas]), or the pixel size on a surface (in
 km [or m]), depending on spatial_frame_type.</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="c1_resol_max" minOccurs="0" maxOccurs="1" type="xs:double">
      <xs:annotation>
        <xs:documentation>This parameter provides a simple estimate of resolution, either
 the FWHM of the PFS on the sky (in degrees [or mas]), or the pixel size on a surface (in
 km [or m]), depending on spatial_frame_type.</xs:documentation>
      </xs:annotation>
    </xs:element>
```

```
    <xs:element name="c2_resol_max" minOccurs="0" maxOccurs="1" type="xs:double">
      <xs:annotation>
        <xs:documentation>This parameter provides a simple estimate of resolution, either
 the FWHM of the PFS on the sky (in degrees [or mas]), or the pixel size on a surface (in
 km [or m]), depending on spatial_frame_type.</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="c3_resol_max" minOccurs="0" maxOccurs="1" type="xs:double">
      <xs:annotation>
        <xs:documentation>This parameter provides a simple estimate of resolution, either
 the FWHM of the PFS on the sky (in degrees [or mas]), or the pixel size on a surface (in
 km [or m]), depending on spatial_frame_type.</xs:documentation>
      </xs:annotation>
    </xs:element>
  </xs:sequence>
</xs:complexType>
```

| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |
|---|---|

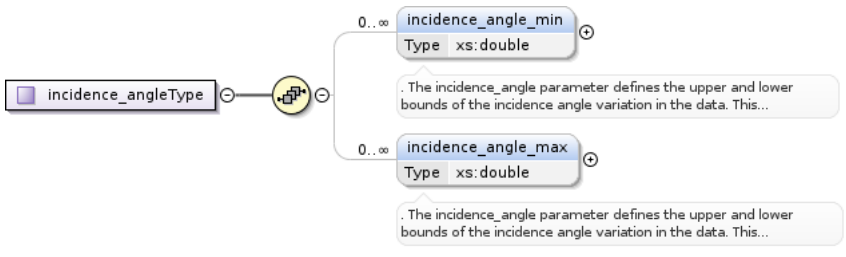
## Complex Type `ViewAngleType`

| Namespace | http://voparis-europlanet.obspm.fr/xml/TAPCore/EPNCore.xsd |
|---|---|
| Diagram |  |
| Used by | Element EPNCoreType/view_angle |
| Model | incidence_angle* , emergence_angle* , phase_angle* |
| Children | emergence_angle, incidence_angle, phase_angle |
| Source | |

```
<xs:complexType name="ViewAngleType">
  <xs:sequence>
    <xs:element name="incidence_angle" minOccurs="0" maxOccurs="unbounded"
 type="incidence_angleType">
    </xs:element>
    <xs:element name="emergence_angle" minOccurs="0" maxOccurs="unbounded"
 type="emergence_angleType">
    </xs:element>
    <xs:element name="phase_angle" minOccurs="0" maxOccurs="unbounded"
 type="phase_angleType">
    </xs:element>
  </xs:sequence>
</xs:complexType>
```

| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |
|---|---|

## Complex Type `incidence_angleType`

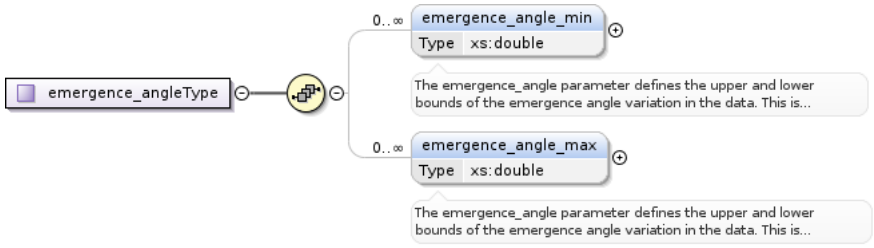
| Namespace | http://voparis-europlanet.obspm.fr/xml/TAPCore/EPNCore.xsd |
|---|---|
| Diagram |  |
| Used by | Element ViewAngleType/incidence_angle |
| Model | incidence_angle_min* , incidence_angle_max* |
| Children | incidence_angle_max, incidence_angle_min |
| Source | |

```
<xs:complexType name="incidence_angleType">
  <xs:sequence>
    <xs:element name="incidence_angle_min" minOccurs="0" maxOccurs="unbounded"
 type="xs:double">
      <xs:annotation>
```

```
        <xs:documentation>. The incidence_angle parameter defines the upper and lower
 bounds of the incidence angle variation in the data. This is always indicated in decimal
 degrees.</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="incidence_angle_max" minOccurs="0" maxOccurs="unbounded"
 type="xs:double">
      <xs:annotation>
        <xs:documentation>. The incidence_angle parameter defines the upper and lower
 bounds of the incidence angle variation in the data. This is always indicated in decimal
 degrees.</xs:documentation>
      </xs:annotation>
    </xs:element>
  </xs:sequence>
</xs:complexType>
```

| | |
|---|---|
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

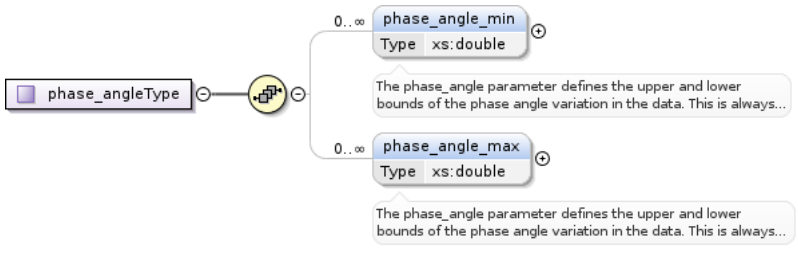
## Complex Type `emergence_angleType`

| | |
|---|---|
| Namespace | http://voparis-europlanet.obspm.fr/xml/TAPCore/EPNCore.xsd |
| Diagram |  |
| Used by | Element ViewAngleType/emergence_angle |
| Model | emergence_angle_min* , emergence_angle_max* |
| Children | emergence_angle_max, emergence_angle_min |
| Source | |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |



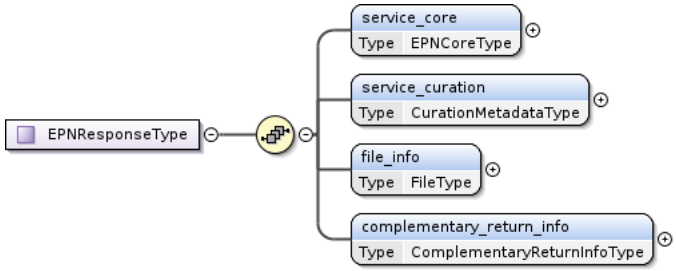
```
<xs:complexType name="emergence_angleType">
  <xs:sequence>
    <xs:element name="emergence_angle_min" minOccurs="0" maxOccurs="unbounded"
 type="xs:double">
      <xs:annotation>
        <xs:documentation>The emergence_angle parameter defines the upper and lower
 bounds of the emergence angle variation in the data. This is always indicated in decimal
 degrees.</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="emergence_angle_max" minOccurs="0" maxOccurs="unbounded"
 type="xs:double">
      <xs:annotation>
        <xs:documentation>The emergence_angle parameter defines the upper and lower
 bounds of the emergence angle variation in the data. This is always indicated in decimal
 degrees.</xs:documentation>
      </xs:annotation>
    </xs:element>
  </xs:sequence>
</xs:complexType>
```

## Complex Type `phase_angleType`

| | |
|---|---|
| Namespace | http://voparis-europlanet.obspm.fr/xml/TAPCore/EPNCore.xsd |
| Diagram |  |
| Used by | Element ViewAngleType/phase_angle |
| Model | phase_angle_min* , phase_angle_max* |

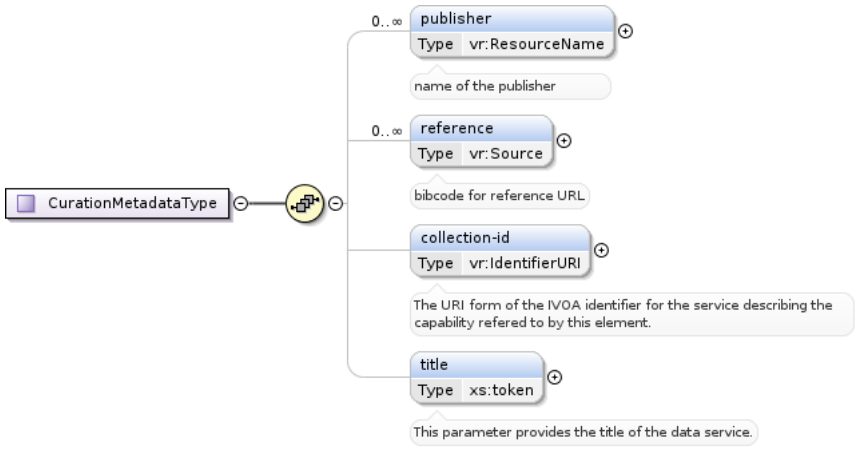
| | |
|---|---|
| Children | phase_angle_max, phase_angle_min |
| Source | <xs:complexType name="phase_angleType"><br><xs:sequence><br><xs:element name="phase_angle_min" minOccurs="0" maxOccurs="unbounded" type="xs:double"><br><xs:annotation><br><xs:documentation>The phase_angle parameter defines the upper and lower bounds of the phase angle variation in the data. This is always indicated in decimal degrees (+ define convention for negative values?). Phase, incidence and emergence are partly related: abs(i - e) smaler than (phi) smaler than (i + e) If the azimuth angle alpha is provided instead of the phase angle, the latter can be derived from knowledge of the three angles: cos (alpha)=cos (i) cos (e) + cos (alpha) sin (i) sin (e)</xs:documentation><br></xs:annotation><br></xs:element><br><xs:element name="phase_angle_max" minOccurs="0" maxOccurs="unbounded" type="xs:double"><br><xs:annotation><br><xs:documentation>The phase_angle parameter defines the upper and lower bounds of the phase angle variation in the data. This is always indicated in decimal degrees (+ define convention for negative values?). Phase, incidence and emergence are partly related: abs(i - e) smaler than (phi) smaler than (i + e) If the azimuth angle alpha is provided instead of the phase angle, the latter can be derived from knowledge of the three angles: cos (alpha)=cos (i) cos (e) + cos (alpha) sin (i) sin (e)</xs:documentation><br></xs:annotation><br></xs:element><br></xs:sequence><br></xs:complexType> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Complex Type EPNResponseType

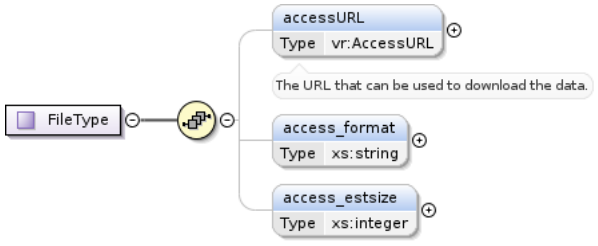
| | |
|---|---|
| Namespace | http://voparis-europlanet.obspm.fr/xml/TAPCore/EPNCore.xsd |
| Diagram |  |
| Used by | Element EPNResponse |
| Model | service_core , service_curation , file_info , complementary_return_info |
| Children | complementary_return_info, file_info, service_core, service_curation |
| Source | <xs:complexType name="EPNResponseType"><br><xs:sequence><br><xs:element name="service_core" type="EPNCoreType"/><br><xs:element name="service_curation" type="CurationMetadataType"/><br><xs:element name="file_info" type="FileType"/><br><xs:element name="complementary_return_info" type="ComplementaryReturnInfoType"/><br></xs:sequence><br></xs:complexType> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Complex Type CurationMetadataType

| | |
|---|---|
| Namespace | http://voparis-europlanet.obspm.fr/xml/TAPCore/EPNCore.xsd |

| | |
|---|---|
| Diagram |  |
| Used by | Element EPNResponseType/service_curation |
| Model | publisher* , reference* , collection-id{0,1} , title{0,1} |
| Children | collection-id, publisher, reference, title |
| Source | <xs:complexType name="CurationMetadataType"><br><xs:sequence><br><xs:element name="publisher" type="vr:ResourceName" minOccurs="0" maxOccurs="unbounded"><br><xs:annotation><br><xs:documentation>name of the publisher</xs:documentation><br></xs:annotation><br></xs:element><br><xs:element name="reference" type="vr:Source" minOccurs="0" maxOccurs="unbounded"><br><xs:annotation><br><xs:documentation>bibcode for reference URL</xs:documentation><br></xs:annotation><br></xs:element><br><xs:element name="collection-id" type="vr:IdentifierURI" minOccurs="0"><br><xs:annotation><br><xs:documentation>The URI form of the IVOA identifier for the service describing the capability refered to by this element.</xs:documentation><br></xs:annotation><br></xs:element><br><xs:element name="title" type="xs:token" minOccurs="0"><br><xs:annotation><br><xs:documentation>This parameter provides the title of the data service.</xs:documentation><br></xs:annotation><br></xs:element><br></xs:sequence><br></xs:complexType> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

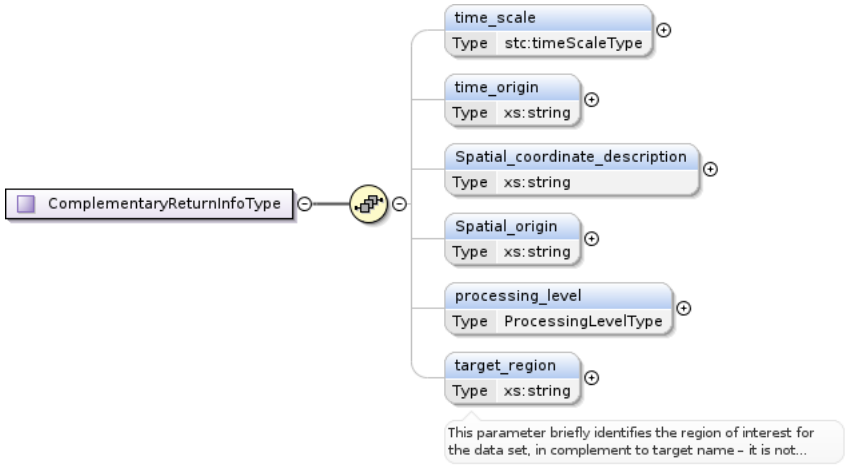
## Complex Type `FileType`

| | |
|---|---|
| Namespace | http://voparis-europlanet.obspm.fr/xml/TAPCore/EPNCore.xsd |
| Diagram |  |
| Used by | Element EPNResponseType/file_info |
| Model | accessURL{0,1} , access_format{0,1} , access_estsize{0,1} |
| Children | accessURL, access_estsize, access_format |
| Source | <xs:complexType name="FileType"><br><xs:sequence><br><xs:element name="accessURL" type="vr:AccessURL" minOccurs="0"><br><xs:annotation> |

```
        <xs:documentation>The URL that can be used to download the data.</
xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="access_format" type="xs:string" minOccurs="0"/>
    <xs:element name="access_estsize" type="xs:integer" minOccurs="0"/>
  </xs:sequence>
</xs:complexType>
```

| | |
|---|---|
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

### Complex Type `ComplementaryReturnInfoType`

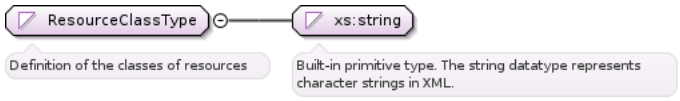
| | |
|---|---|
| Namespace | http://voparis-europlanet.obspm.fr/xml/TAPCore/EPNCore.xsd |
| Diagram |   |
| Used by | Element EPNResponseType/complementary_return_info |
| Model | time_scale{0,1} , time_origin{0,1} , Spatial_coordinate_description{0,1} , Spatial_origin{0,1} , processing_level{0,1} , target_region{0,1} |
| Children | Spatial_coordinate_description, Spatial_origin, processing_level, target_region, time_origin, time_scale |
| Source | |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

```
<xs:complexType name="ComplementaryReturnInfoType">
  <xs:sequence>
    <xs:element minOccurs="0" maxOccurs="1" name="time_scale" type="stc:timeScaleType">
    </xs:element>
    <xs:element minOccurs="0" name="time_origin" type="xs:string">
    </xs:element>
    <xs:element minOccurs="0" name="Spatial_coordinate_description" type="xs:string">
    </xs:element>
    <xs:element minOccurs="0" name="Spatial_origin" type="xs:string">
    </xs:element>
    <xs:element minOccurs="0" name="processing_level" type="ProcessingLevelType">
    </xs:element>
    <xs:element minOccurs="0" name="target_region" type="xs:string">
      <xs:annotation>
        <xs:documentation>This parameter briefly identifies the region of interest
 for the data set, in complement to target name – it is not mandatory. This parameter
 only introduces generic regions, not specific local names (see examples below). The
 best practice is to take the values from standard sources: - IAU thesaurus http://
www.mso.anu.edu.au/library/thesaurus/ + another version: http://www.vocabularyserver.com/
trex/en/ The second one seems more recent and more complete (although the interface is not
 practical) - Spase dictionary “http://www.spase-group.org/”</xs:documentation>
      </xs:annotation>
    </xs:element>
  </xs:sequence>
</xs:complexType>
```

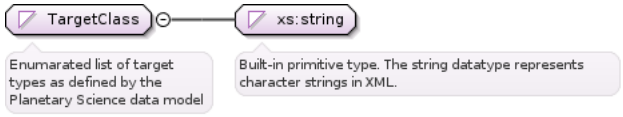
## Simple Type(s)

### Simple Type `ResourceClassType`

| | |
|---|---|
| Namespace | http://voparis-europlanet.obspm.fr/xml/TAPCore/EPNCore.xsd |
| Annotations | Definition of the classes of resources |

| | |
|---|---|
| Diagram |  |
| Type | restriction of xs:string |
| Facets | enumeration `dataset`<br>enumeration `granule` |
| Used by | Element EPNCoreType/resource_type |
| Source | `<xs:simpleType name="ResourceClassType">`<br>`  <xs:annotation>`<br>`  <xs:documentation>Definition of the classes of resources</xs:documentation>`<br>`  </xs:annotation>`<br>`  <xs:restriction base="xs:string">`<br>`  <xs:enumeration value="dataset"/>`<br>`  <xs:enumeration value="granule"/>`<br>`  </xs:restriction>`<br>`</xs:simpleType>` |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

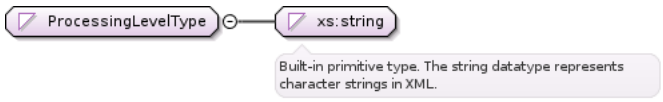
## Simple Type `TargetClass`

| | |
|---|---|
| Namespace | http://voparis-europlanet.obspm.fr/xml/TAPCore/EPNCore.xsd |
| Annotations | Enumarated list of target types as defined by the Planetary Science data model |
| Diagram |  |
| Type | restriction of xs:string |
| Facets | enumeration `asteroid`<br>enumeration `comet`<br>enumeration `dwarf_planet`<br>enumeration `exoplanet`<br>enumeration `interplanetary_medium`<br>enumeration `planet`<br>enumeration `ring`<br>enumeration `sample`<br>enumeration `satellite`<br>enumeration `sky`<br>enumeration `spacecraft`<br>enumeration `spacejunk`<br>enumeration `star` |
| Used by | Element EPNCoreType/target_class |
| Source | `<xs:simpleType name="TargetClass">`<br>`  <xs:annotation>`<br>`  <xs:documentation>Enumarated list of target types as defined by the Planetary Science data model</xs:documentation>`<br>`  </xs:annotation>`<br>`  <xs:restriction base="xs:string">`<br>`  <xs:enumeration id="ast" value="asteroid"/>`<br>`  <xs:enumeration id="com" value="comet"/>`<br>`  <xs:enumeration id="dwa" value="dwarf_planet"/>`<br>`  <xs:enumeration id="exo" value="exoplanet"/>`<br>`  <xs:enumeration id="ipm" value="interplanetary_medium"/>`<br>`  <xs:enumeration id="ppl" value="planet"/>`<br>`  <xs:enumeration id="rin" value="ring"/>`<br>`  <xs:enumeration id="sam" value="sample"/>`<br>`  <xs:enumeration id="sat" value="satellite"/>`<br>`  <xs:enumeration id="sky" value="sky"/>`<br>`  <xs:enumeration id="spc" value="spacecraft"/>`<br>`  <xs:enumeration id="spj" value="spacejunk"/>`<br>`  <xs:enumeration id="sta" value="star"/>` |

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

| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |
|---|---|

## Simple Type `ProcessingLevelType`

| Namespace | http://voparis-europlanet.obspm.fr/xml/TAPCore/EPNCore.xsd |
|---|---|
| Diagram |  |
| Type | restriction of xs:string |

Facets

| | | |
|---|---|---|
| enumeration | 1 | raw data : Unprocessed Data Record (low level encoding, e.g. telemetry from a spacecraft instrument. Normally available only to the original team) |
| enumeration | 2 | edited : Experiment Data Record (often referred to as “raw data”: decommutated, but still affected by instrumental effects) |
| enumeration | 3 | partially calibrated data : Reduced Data Record (“calibrated” in physical units) |
| enumeration | 4 | resampled : Reformatted Data Record (mosaics or composite of several observing sessions, involving some level of data fusion) |
| enumeration | 5 | derived : Derived Data Record (results of data analysis, directly usable by other communities with no further processing) |
| enumeration | 6 | Ancillary Data Record (extra data specifically supporting a data set, such as coordinates, geometry…) |

| Used by | Element | ComplementaryReturnInfoType/processing_level |
|---|---|---|

Source

```
<xs:simpleType name="ProcessingLevelType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="1">
      <xs:annotation>
        <xs:documentation>raw data : Unprocessed Data Record (low level encoding, e.g.
 telemetry from a spacecraft instrument. Normally available only to the original team)</
xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="2">
      <xs:annotation>
        <xs:documentation>edited : Experiment Data Record (often referred to as “raw
 data”: decommutated, but still affected by instrumental effects)</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="3">
      <xs:annotation>
        <xs:documentation>partially calibrated data : Reduced Data Record (“calibrated” in
 physical units)</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="4">
      <xs:annotation>
        <xs:documentation>resampled : Reformatted Data Record (mosaics or composite of
 several observing sessions, involving some level of data fusion)</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="5">
      <xs:annotation>
        <xs:documentation>derived : Derived Data Record (results of data analysis,
 directly usable by other communities with no further processing)</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="6">
      <xs:annotation>
        <xs:documentation>Ancillary Data Record (extra data specifically supporting a data
 set, such as coordinates, geometry…)</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
  </xs:restriction>
```

```
  <!-- previous definition
        <xs:choice>
            <xs:element name="raw" fixed="0">
                <xs:annotation>
   <xs:documentation>
    raw data
                    </xs:documentation>
                </xs:annotation>
            </xs:element>
            <xs:element name="Experiment_Data_Record" fixed="1">
                <xs:annotation>
   <xs:documentation>
    raw data
                    </xs:documentation>
                </xs:annotation>
            </xs:element>
            <xs:element name="Reduced_Data_Record" fixed="2">
                <xs:annotation>
   <xs:documentation>
    Reduced Data Record
                    </xs:documentation>
                </xs:annotation>
            </xs:element>
            <xs:element name="Derived_Data_Record" fixed="3">
                <xs:annotation>
   <xs:documentation>
    Derived Data Record
                    </xs:documentation>
                </xs:annotation>
            </xs:element>
    </xs:choice>
    end of previous definition -->
</xs:simpleType>
```

| | |
|---|---|
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

# Namespace: "http://www.ivoa.net/xml/STC/stc-v1.30.xsd"

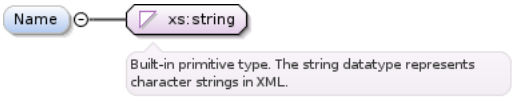
## Schema(s)

### Imported schema `stc-v1.30.xsd`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Properties | attribute form default: `unqualified`<br>element form default: `qualified` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

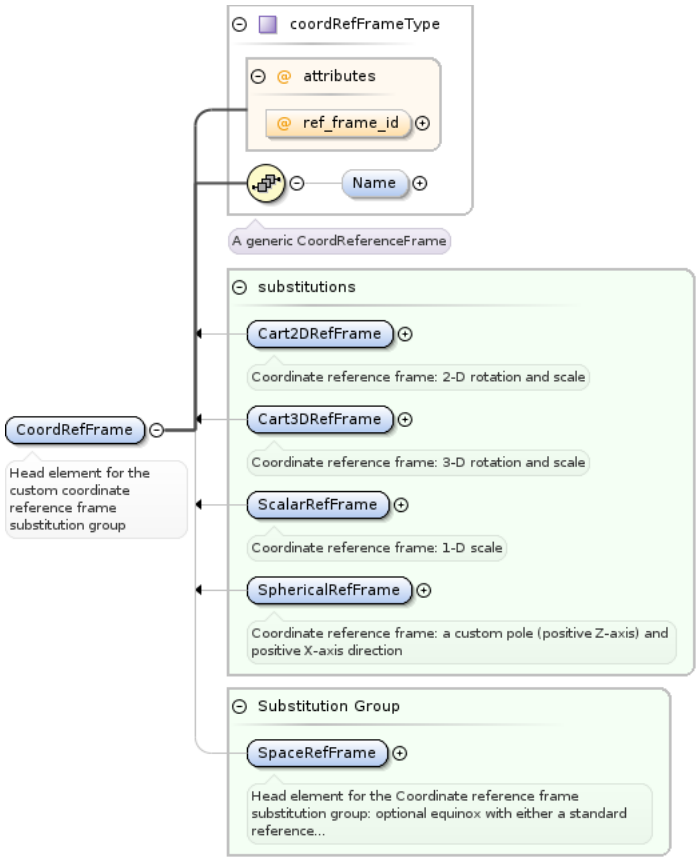
## Element(s)

### Element `coordFrameType / Name`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Diagram |  |
| Type | xs:string |
| Properties | content: `simple`<br>minOccurs: `0` |
| `Source` | `<xs:element name="Name" type="xs:string" minOccurs="0"/>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

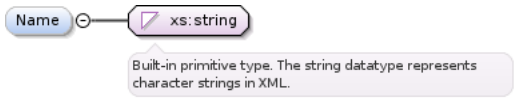
### Element `CoordRefFrame`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `Head element for the custom coordinate reference frame substitution group` |

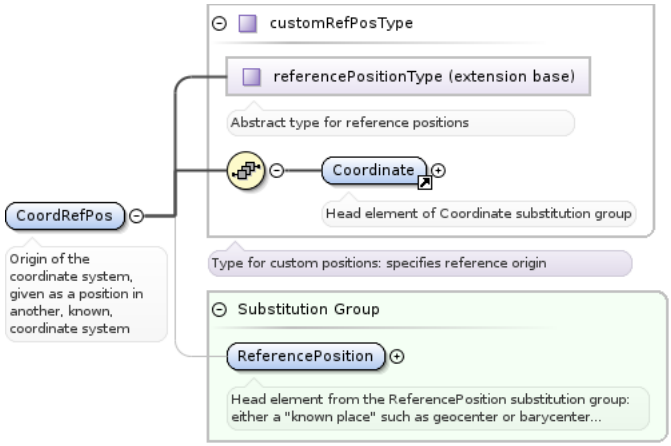
| | |
|---|---|
| Diagram |  |
| Type | coordRefFrameType |
| Properties | content: `complex` |
| `Substitution Group` | • SphericalRefFrame<br>• ScalarRefFrame<br>• Cart2DRefFrame<br>• Cart3DRefFrame |
| `Substitution Group Affiliation` | • SpaceRefFrame |
| Used by | Complex Types genericCoordFrameType, pixelFrameType |
| Model | Name{0,1} |
| Children | Name |
| `Instance` | `<CoordRefFrame ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Name>{0,1}</Name>`<br>`</CoordRefFrame>` |
| Attributes | **QName** \| **Type** \| **Fixed** \| **Default** \| **Use**<br>**ref_frame_id** \| xs:IDREF \| \| \| optional |
| `Source` | `<xs:element name="CoordRefFrame" type="coordRefFrameType"`<br>` substitutionGroup="SpaceRefFrame">`<br>`  <xs:annotation>`<br>`  <xs:documentation>Head element for the custom coordinate reference frame substitution group</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `coordRefFrameType / Name`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

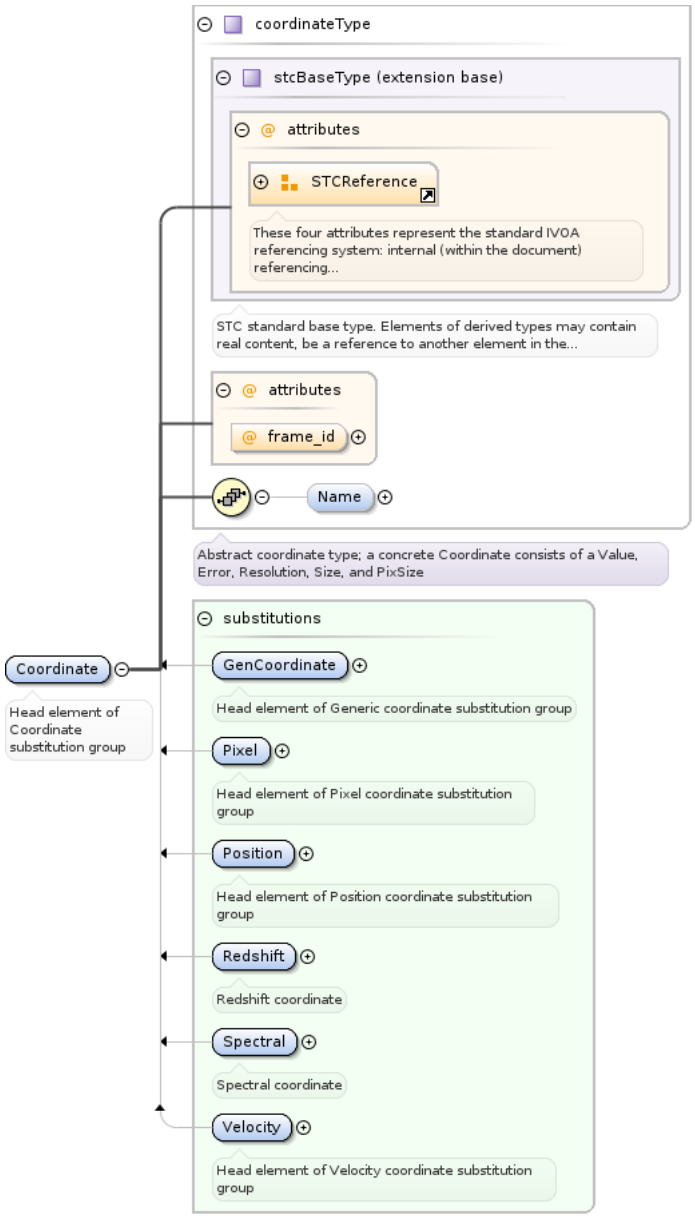
| | |
|---|---|
| Diagram |  |
| Type | xs:string |
| Properties | content: simple<br>minOccurs: 0 |
| Source | `<xs:element name="Name" type="xs:string" minOccurs="0"/>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element CoordRefPos

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Origin of the coordinate system, given as a position in another, known, coordinate system |
| Diagram |  |
| Type | customRefPosType |
| Type hierarchy | • referencePositionType<br>  • customRefPosType |
| Properties | content: complex |
| Substitution Group Affiliation | • ReferencePosition |
| Used by | Complex Types genericCoordFrameType, pixelFrameType |
| Model | Coordinate |
| Children | Coordinate |
| Instance | `<CoordRefPos xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Coordinate frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd=`<br>`Coordinate>`<br>`</CoordRefPos>` |
| Source | `<xs:element name="CoordRefPos" type="customRefPosType"`<br>` substitutionGroup="ReferencePosition">`<br>`  <xs:annotation>`<br>`  <xs:documentation>Origin of the coordinate system, given as a position in another,`<br>` known, coordinate system</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element Coordinate

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Head element of Coordinate substitution group |

| | |
|---|---|
| Diagram |  |
| Type | coordinateType |
| Type hierarchy | • stcBaseType<br>  • coordinateType |
| Properties | content: `complex`<br>nillable: `true` |
| `Substitution Group` | • GenCoordinate<br>• StringCoordinate<br>• ScalarCoordinate<br>• Vector2DCoordinate<br>• Vector3DCoordinate<br>• Pixel<br>• Pixel1D<br>• Pixel2D<br>• Pixel3D |

| | |
|---|---|
| | • Position<br>• Position1D<br>• Position2D<br>• Position3D<br>• Velocity<br>• Velocity1D<br>• Velocity2D<br>• Velocity3D<br>• Spectral<br>• Redshift |
| Used by | Complex Type customRefPosType |
| Model | Name{0,1} |
| Children | Name |
| `Instance` | `<Coordinate frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Name>{0,1}</Name>`<br>`</Coordinate>` |

Attributes

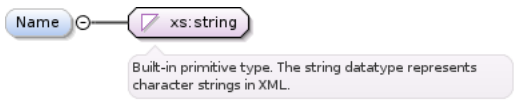
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **frame_id** | xs:IDREF | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

`Source`

```
<xs:element name="Coordinate" type="coordinateType" nillable="true">
  <xs:annotation>
    <xs:documentation>Head element of Coordinate substitution group</xs:documentation>
  </xs:annotation>
</xs:element>
```

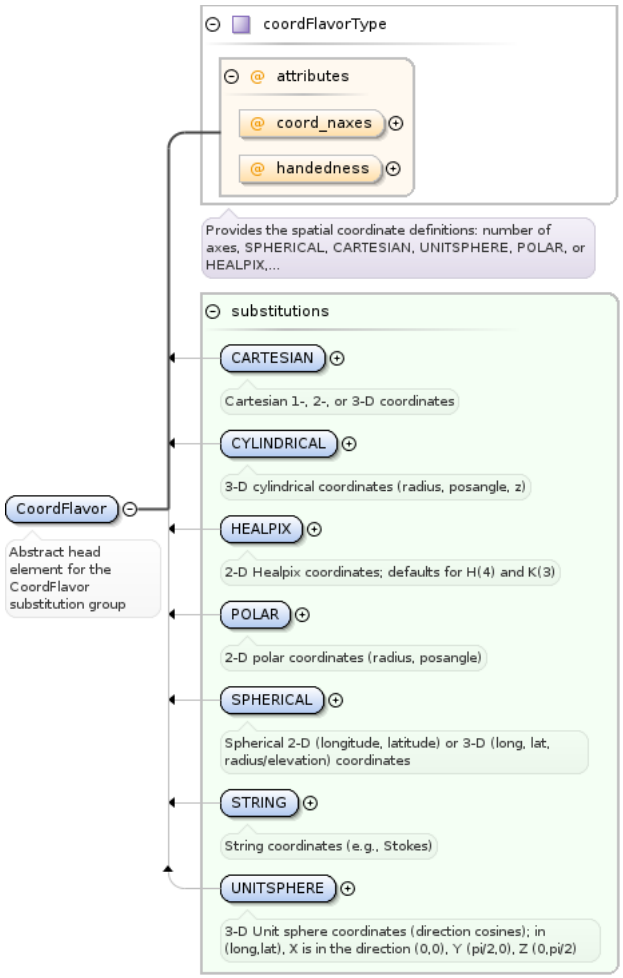
| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `coordinateType / Name`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Diagram |  |
| Type | xs:string |
| Properties | content: `simple`<br>minOccurs: `0` |
| `Source` | `<xs:element name="Name" type="xs:string" minOccurs="0"/>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `CoordFlavor`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `Abstract head element for the CoordFlavor substitution group` |

| | |
|---|---|
| Diagram |  |
| Type | coordFlavorType |
| Properties | content: `complex`<br>abstract: `true` |
| `Substitution Group` | • SPHERICAL<br>• CARTESIAN<br>• UNITSPHERE<br>• POLAR<br>• CYLINDRICAL<br>• STRING<br>• HEALPIX |
| Used by | Complex Types: genericCoordFrameType, pixelFrameType, spaceFrameType |

Attributes

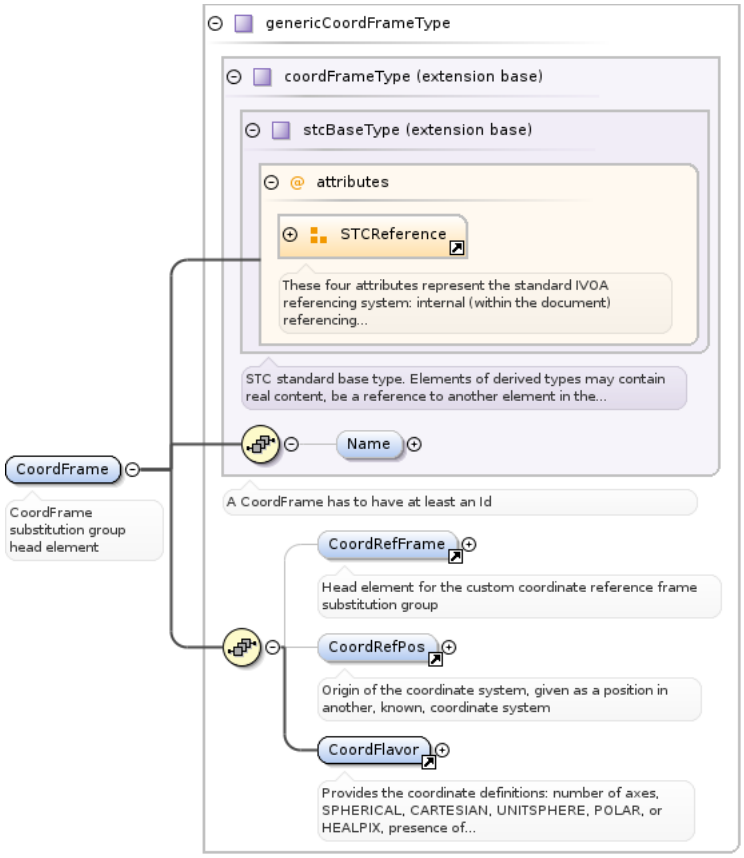
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **coord_naxes** | restriction of xs:integer | | 2 | optional |
| **handedness** | restriction of xs:string | | | optional |

`Source`

```
<xs:element name="CoordFlavor" type="coordFlavorType" abstract="true">
  <xs:annotation>
    <xs:documentation>Abstract head element for the CoordFlavor substitution group</
xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `CoordFrame`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `CoordFrame substitution group head element` |
| Diagram |  |
| Type | genericCoordFrameType |
| Type hierarchy | • stcBaseType<br>  • coordFrameType<br>  • genericCoordFrameType |
| Properties | content: `complex`<br>nillable: `true` |
| Used by | Complex Types: astroCoordSystemType, coordSysType, pixelCoordSystemType |
| Model | Name{0,1} , CoordRefFrame{0,1} , CoordRefPos{0,1} , CoordFlavor |
| Children | CoordFlavor, CoordRefFrame, CoordRefPos, Name |
| `Instance` | `<CoordFrame xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" xmlns="http www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Name>{0,1}</Name>`<br>`  <CoordRefFrame ref_frame_id="">{0,1}</CoordRefFrame>`<br>`  <CoordRefPos>{0,1}</CoordRefPos>`<br>`  <CoordFlavor coord_naxes="2" handedness="">{1,1}</CoordFlavor>`<br>`</CoordFrame>` |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |

| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

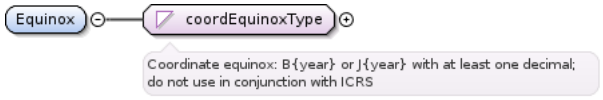
```
<xs:element name="CoordFrame" type="genericCoordFrameType" nillable="true">
  <xs:annotation>
    <xs:documentation>CoordFrame substitution group head element</xs:documentation>
  </xs:annotation>
</xs:element>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Element fkType / Equinox

Namespace: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

Diagram




Type: coordEquinoxType

Properties

| | |
|---|---|
| content: | simple |
| nillable: | true |

Facets

| | |
|---|---|
| pattern | [BJ]\-?\d?\d?\d?\d\d\d \d\.\d\d?\d? |

Source

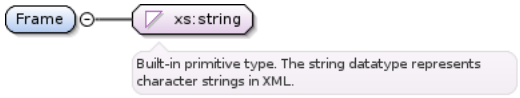
```
<xs:element name="Equinox" type="coordEquinoxType" nillable="true"/>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Element sphericalRefFrameType / Frame

Namespace: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

Diagram




Type: xs:string

Properties

| | |
|---|---|
| content: | simple |

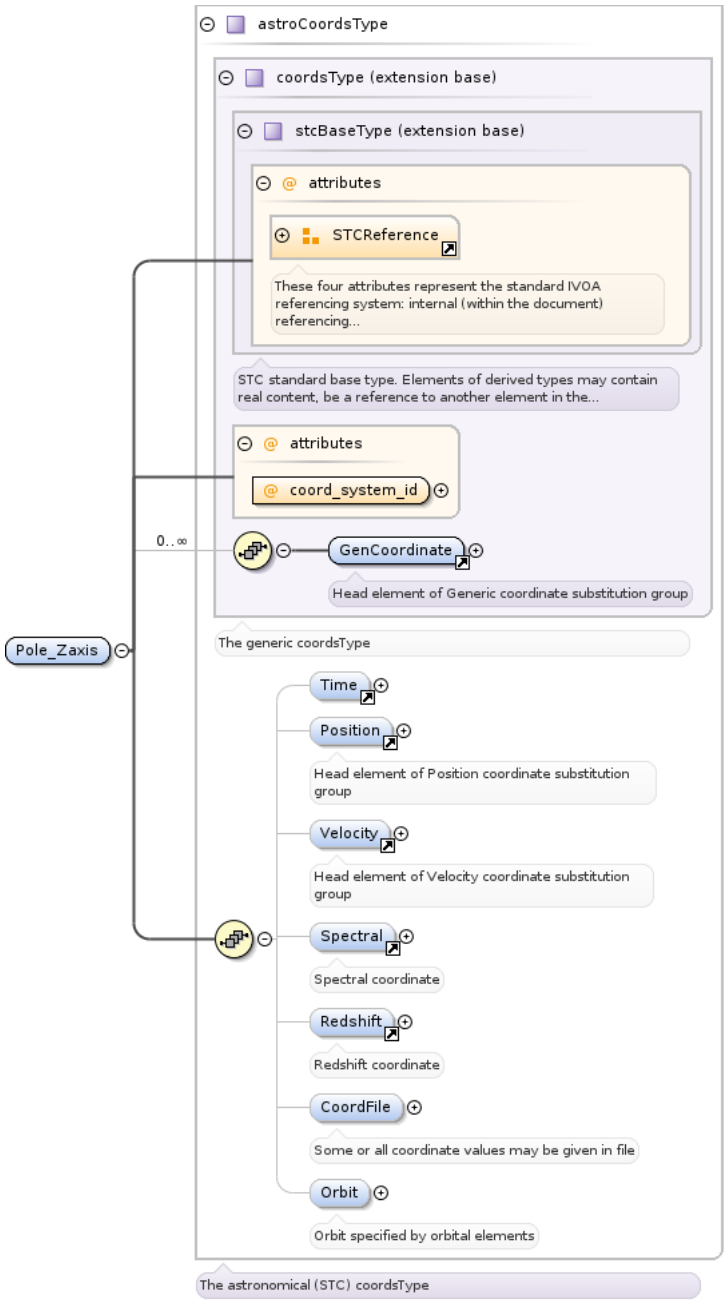
Source

```
<xs:element name="Frame" type="xs:string"/>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Element sphericalRefFrameType / Pole_Zaxis

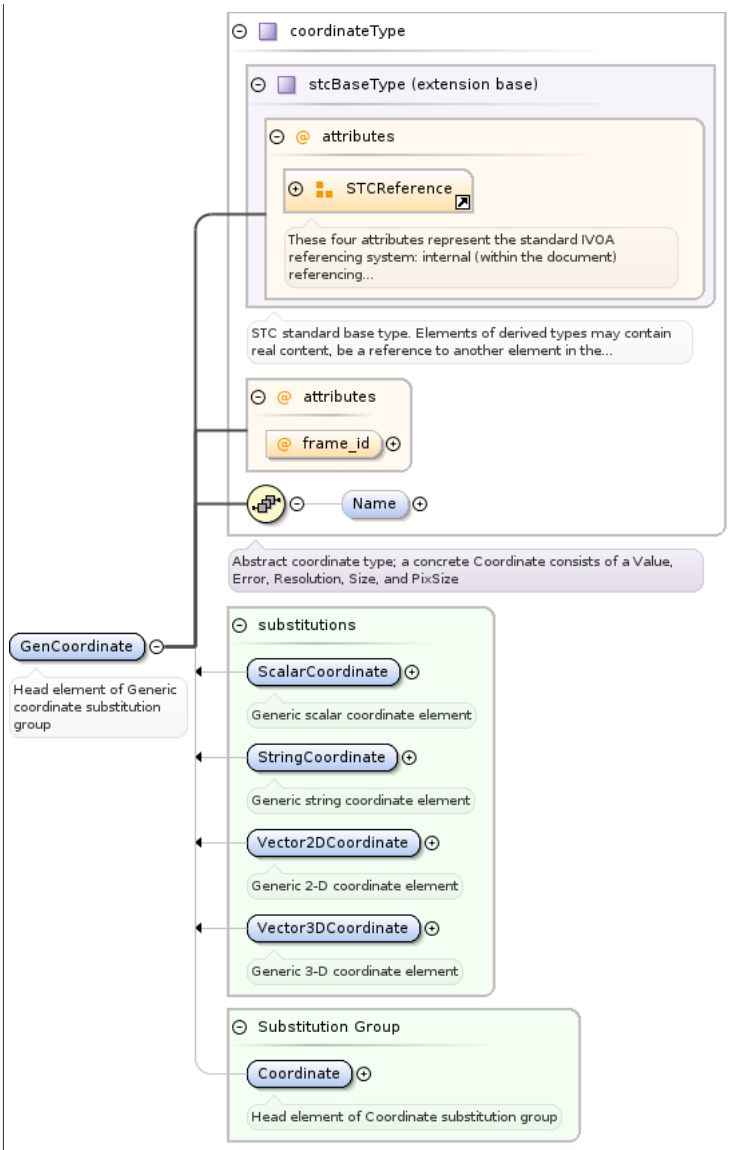
Namespace: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

| | |
|---|---|
| Diagram |  |
| Type | astroCoordsType |
| Type hierarchy | • stcBaseType<br>  • coordsType<br>  • astroCoordsType |
| Properties | content: complex<br>nillable: true |
| Model | GenCoordinate , Time{0,1} , Position{0,1} , Velocity{0,1} , Spectral{0,1} , Redshift{0,1} , CoordFile{0,1} , Orbit{0,1} |
| Children | CoordFile, GenCoordinate, Orbit, Position, Redshift, Spectral, Time, Velocity |
| Instance | <Pole_Zaxis coord_system_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple"<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <GenCoordinate frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" u<br>GenCoordinate><br>  <Time coord_system_id="" frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type=<br>Time><br>  <Position frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd=""<br>Position> |

<table>
<tr><td></td><td>
<Velocity frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" />
<Spectral coord_system_id="" frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:t />
<Redshift coord_system_id="" frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:t />
<CoordFile frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" />
<Orbit frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="">{0
</td></tr>
<tr><td>Attributes</td><td>
<table>
<tr><th>QName</th><th>Type</th><th>Fixed</th><th>Default</th><th>Use</th></tr>
<tr><td>IDREF_type</td><td>xs:string</td><td></td><td></td><td>optional</td></tr>
<tr><td>ID_type</td><td>xs:string</td><td></td><td></td><td>optional</td></tr>
<tr><td>coord_system_id</td><td>xs:IDREF</td><td></td><td></td><td>required</td></tr>
<tr><td>id</td><td>xs:ID</td><td></td><td></td><td>optional</td></tr>
<tr><td>idref</td><td>xs:IDREF</td><td></td><td></td><td>optional</td></tr>
<tr><td>ucd</td><td>xs:string</td><td></td><td></td><td>optional</td></tr>
<tr><td>xlink:href</td><td>xs:anyURI</td><td></td><td></td><td>optional</td></tr>
<tr><td>xlink:type</td><td>restriction of xs:NMTOKEN</td><td></td><td>simple</td><td>optional</td></tr>
</table>
</td></tr>
<tr><td>Source</td><td><xs:element name="Pole_Zaxis" type="astroCoordsType" nillable="true"/></td></tr>
<tr><td>Schema location</td><td>http://www.ivoa.net/xml/STC/stc-v1.30.xsd</td></tr>
</table>

## Element GenCoordinate

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Head element of Generic coordinate substitution group |

| | |
|---|---|
| Diagram |  |
| Type | coordinateType |
| Type hierarchy | • stcBaseType<br>  • coordinateType |
| Properties | content: complex<br>nillable: true |
| Substitution Group | • StringCoordinate<br>• ScalarCoordinate<br>• Vector2DCoordinate<br>• Vector3DCoordinate |
| Substitution Group Affiliation | • Coordinate |
| Used by | Complex Types: astroCoordsType, coordsType, genericRefPosType, pixelCoordsType |
| Model | Name{0,1} |
| Children | Name |
| Instance | <GenCoordinate frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <Name>{0,1}</Name><br></GenCoordinate> |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **frame_id** | xs:IDREF | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

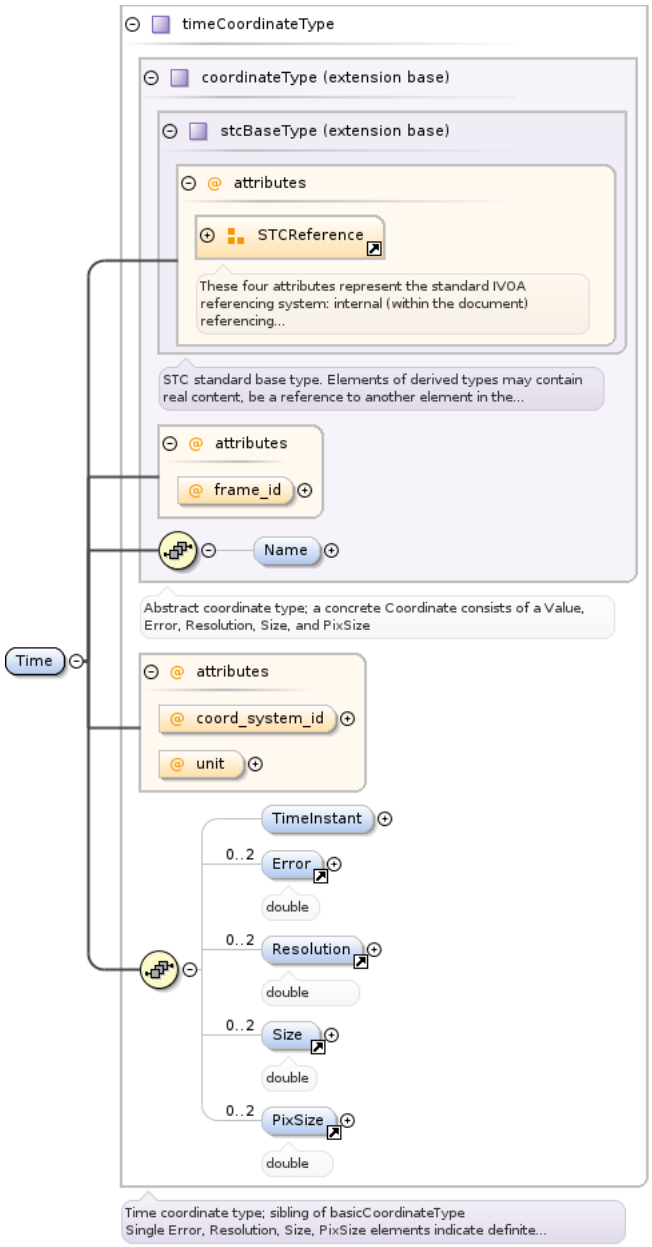
Source

```
<xs:element name="GenCoordinate" type="coordinateType" substitutionGroup="Coordinate"
 nillable="true">
  <xs:annotation>
    <xs:documentation>Head element of Generic coordinate substitution group</
xs:documentation>
  </xs:annotation>
</xs:element>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Element `Time`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

| | |
|---|---|
| Diagram |  |
| Type | timeCoordinateType |
| Type hierarchy | • stcBaseType<br>  • coordinateType<br>  • timeCoordinateType |
| Properties | content: complex<br>nillable: true |
| Used by | Complex Type astroCoordsType |
| Model | Name{0,1} , TimeInstant{0,1} , Error{0,2} , Resolution{0,2} , Size{0,2} , PixSize{0,2} |
| Children | Error, Name, PixSize, Resolution, Size, TimeInstant |
| Instance | <Time coord_system_id="" frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="s<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <Name>{0,1}</Name><br>  <TimeInstant>{0,1}</TimeInstant><br>  <Error gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit=""<br>Error><br>  <Resolution gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_un<br>Resolution> |

```
  <Size gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" 
Size>
  <PixSize gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit=
PixSize>
</Time>
```

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **frame_id** | xs:IDREF | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | timeUnitType | | s | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

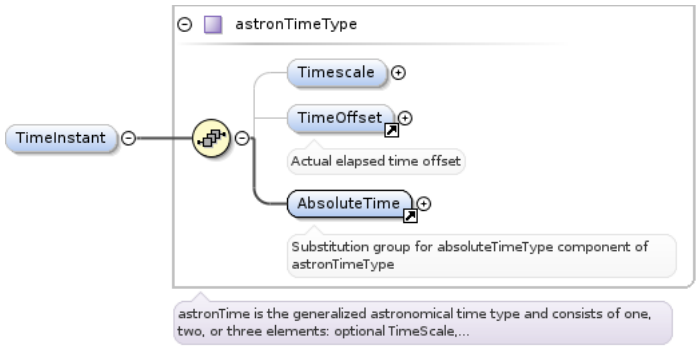
```
<xs:element name="Time" type="timeCoordinateType" nillable="true"/>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Element `timeCoordinateType / TimeInstant`

Namespace: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

Diagram




Type: astronTimeType

Properties

| | |
|---|---|
| content: | complex |
| minOccurs: | 0 |

Model: Timescale{0,1} , TimeOffset{0,1} , AbsoluteTime

Children: AbsoluteTime, TimeOffset, Timescale

Instance

```
<TimeInstant xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">
  <Timescale>{0,1}</Timescale>
  <TimeOffset xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" unit="s">
TimeOffset>
  <AbsoluteTime>{1,1}</AbsoluteTime>
</TimeInstant>
```

Source

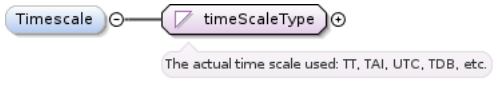
```
<xs:element name="TimeInstant" type="astronTimeType" minOccurs="0"/>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Element `astronTimeType / Timescale`

Namespace: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

Diagram



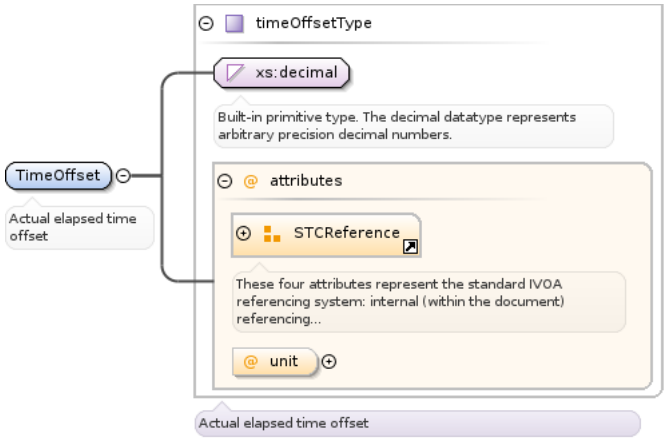

Type: timeScaleType

Properties

| | |
|---|---|
| content: | simple |

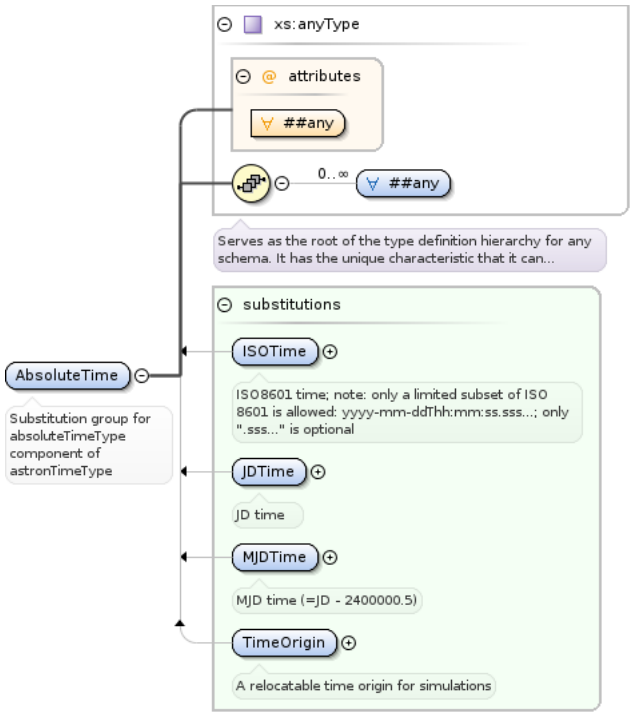
| | | | |
|---|---|---|---|
| | minOccurs: | 0 | |
| | nillable: | true | |
| Facets | enumeration | TT | Terrestrial Time; the basis for ephemerides |
| | enumeration | TDT | Obsolete synonym for TT |
| | enumeration | ET | Ephemeris Time; predecessor of, and continuous with, TT |
| | enumeration | TDB | Barycentric Dynamic Time:the independent variable in planetay ephemerides; time at the solar system barycenter synchronous with TT on an annual basis; sometimes called TEB |
| | enumeration | TEB | Barycentric Ephemeris Time: time at the solar system barycenter synchronous with TT on an annual basis; a deprecated synonym of TDB. |
| | enumeration | TCG | Terrestrial Coordinate Time |
| | enumeration | TCB | Barycentric Coordinate Time; runs slower than TDB but is consistent with physical constants |
| | enumeration | TAI | International Atomic Time; runs 32.184 s behind TT |
| | enumeration | IAT | Synonym for TAI |
| | enumeration | UTC | Coordinated Universal Time; currently (2006) runs 33 leapseconds behind TAI |
| | enumeration | GPS | Global Positioning System's time scale; runs 19 s behind TAI, 51.184 s behind TT. |
| | enumeration | LST | Local Siderial Time; only for ground-based observations; note that the second is shorter |
| | enumeration | GMST | Greenwich Mean Siderial Time; only for ground-based observations; note that the second is shorter |
| | enumeration | LOCAL | Only to be used for simulations in conjunction with a relocatable spatial frame |
| Source | <xs:element name="Timescale" type="timeScaleType" nillable="true" minOccurs="0"/> | | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | | |

## Element TimeOffset

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Actual elapsed time offset |
| Diagram |  |
| Type | timeOffsetType |
| Properties | content: complex |
| | nillable: true |
| Used by | Complex Type: astronTimeType |

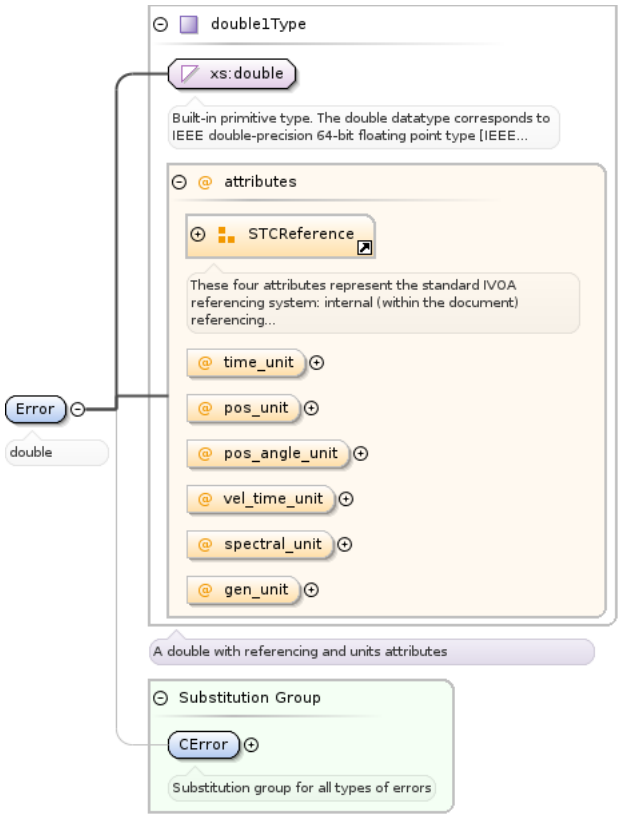
| | | | | | |
|---|---|---|---|---|---|
| Attributes | **QName** | **Type** | **Fixed** | **Default** | **Use** |
| | **IDREF_type** | xs:string | | | optional |
| | **ID_type** | xs:string | | | optional |
| | **id** | xs:ID | | | optional |
| | **idref** | xs:IDREF | | | optional |
| | **ucd** | xs:string | | | optional |
| | **unit** | timeUnitType | | s | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |
| Source | <xs:element name="TimeOffset" type="timeOffsetType" nillable="true"><br><xs:annotation><br><xs:documentation>Actual elapsed time offset</xs:documentation><br></xs:annotation><br></xs:element> | | | | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | | | | |

## Element AbsoluteTime

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Substitution group for absoluteTimeType component of astronTimeType |
| Diagram |  |
| Properties | abstract: true | |
| Substitution Group | • ISOTime<br>• JDTime<br>• MJDTime<br>• TimeOrigin | |
| Used by | Complex Type astronTimeType | |
| Source | <xs:element name="AbsoluteTime" type="xs:anyType" abstract="true"><br><xs:annotation><br><xs:documentation>Substitution group for absoluteTimeType component of astronTimeType</xs:documentation><br></xs:annotation><br></xs:element> | |

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `Error`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `double` |
| Diagram |  |
| Type | double1Type |
| Properties | content: `complex`<br>nillable: `true` |
| `Substitution Group Affiliation` | • CError |
| Used by | Complex Types: basicCoordinateType, posVector1CoordinateType, redshiftCoordinateType, scalarCoordinateType, spectralCoordinateType, timeCoordinateType, velVector1CoordinateType |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **pos_angle_unit** | angleUnitType | | | optional |
| **pos_unit** | posUnitType | | | optional |
| **spectral_unit** | spectralUnitType | | | optional |
| **time_unit** | timeUnitType | | | optional |
| **ucd** | xs:string | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

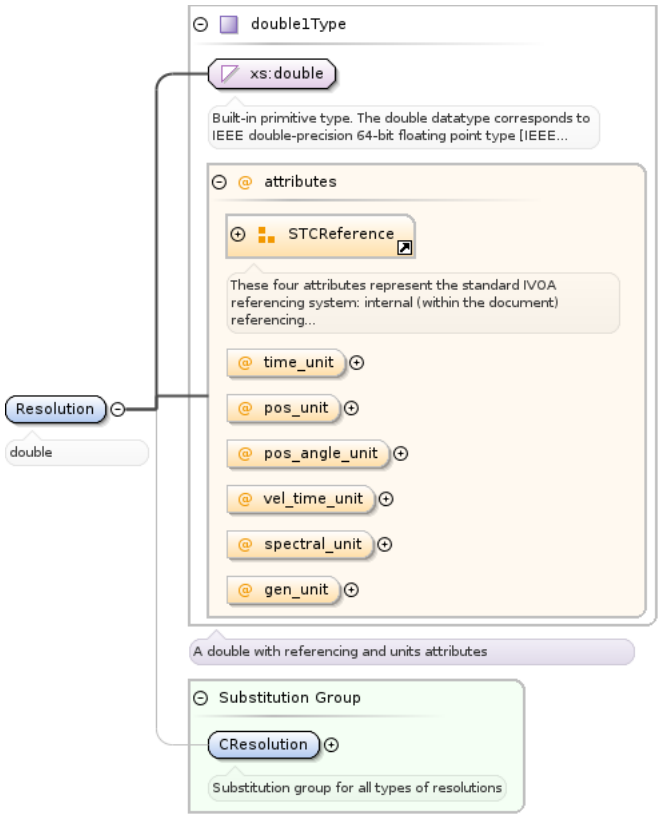
Source

```
<xs:element name="Error" type="double1Type" substitutionGroup="CError" nillable="true">
```

```
  <xs:annotation>
    <xs:documentation>double</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `Resolution`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `double` |
| Diagram |  |
| Type | double1Type |
| Properties | content: `complex`<br>nillable: `true` |
| `Substitution Group Affiliation` | • CResolution |
| Used by | Complex Types: basicCoordinateType, posVector1CoordinateType, redshiftCoordinateType, scalarCoordinateType, spectralCoordinateType, timeCoordinateType, velVector1CoordinateType |



Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **pos_angle_unit** | angleUnitType | | | optional |
| **pos_unit** | posUnitType | | | optional |
| **spectral_unit** | spectralUnitType | | | optional |
| **time_unit** | timeUnitType | | | optional |
| **ucd** | xs:string | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |

| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:element name="Resolution" type="double1Type" substitutionGroup="CResolution"
 nillable="true">
  <xs:annotation>
    <xs:documentation>double</xs:documentation>
  </xs:annotation>
</xs:element>
```

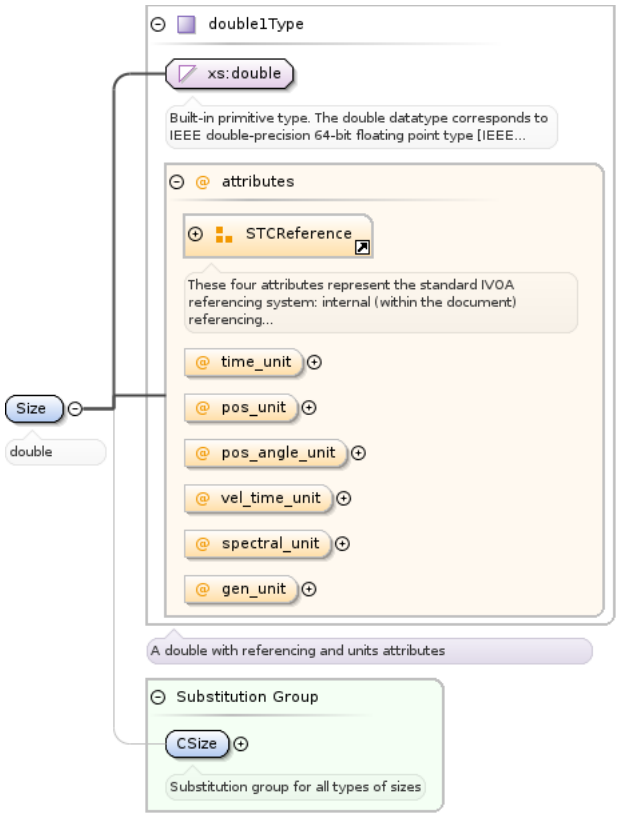
Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Element Size

Namespace: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

Annotations: double

Diagram




Type: double1Type

Properties

| | |
|---|---|
| content: | complex |
| nillable: | true |

Substitution Group Affiliation

- CSize

Used by

| | |
|---|---|
| Complex Types | basicCoordinateType, posVector1CoordinateType, redshiftCoordinateType, scalarCoordinateType, spectralCoordinateType, timeCoordinateType, velVector1CoordinateType |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **pos_angle_unit** | angleUnitType | | | optional |
| **pos_unit** | posUnitType | | | optional |
| **spectral_unit** | spectralUnitType | | | optional |

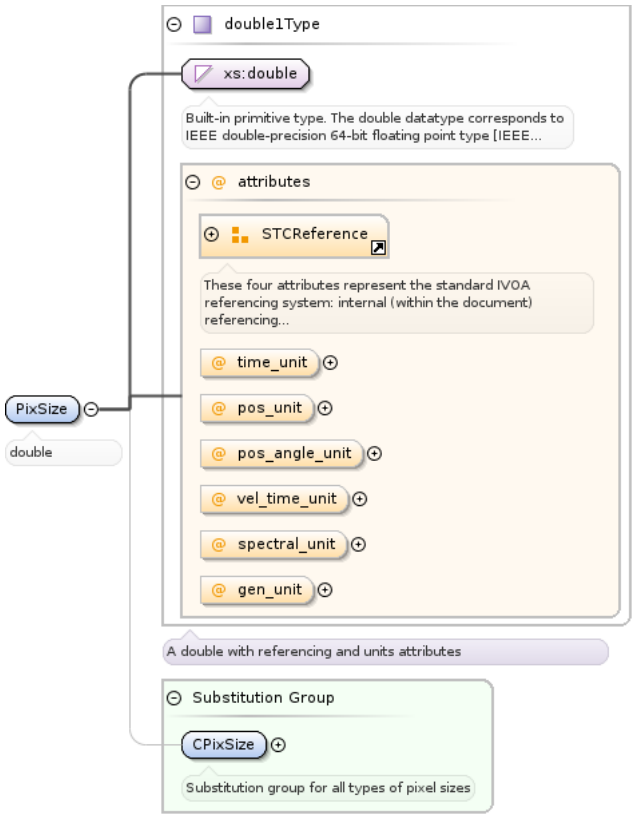
| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **time_unit** | timeUnitType | | | optional |
| | **ucd** | xs:string | | | optional |
| | **vel_time_unit** | velTimeUnitType | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:element name="Size" type="double1Type" substitutionGroup="CSize" nillable="true">
  <xs:annotation>
    <xs:documentation>double</xs:documentation>
  </xs:annotation>
</xs:element>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Element PixSize

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | double |
| Diagram |  |
| Type | double1Type |



| Properties | | |
|---|---|---|
| | content: | complex |
| | nillable: | true |

Substitution Group Affiliation

- CPixSize

| Used by | | |
|---|---|---|
| | Complex Types | basicCoordinateType, posVector1CoordinateType, redshiftCoordinateType, scalarCoordinateType, spectralCoordinateType, timeCoordinateType, velVector1CoordinateType |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |

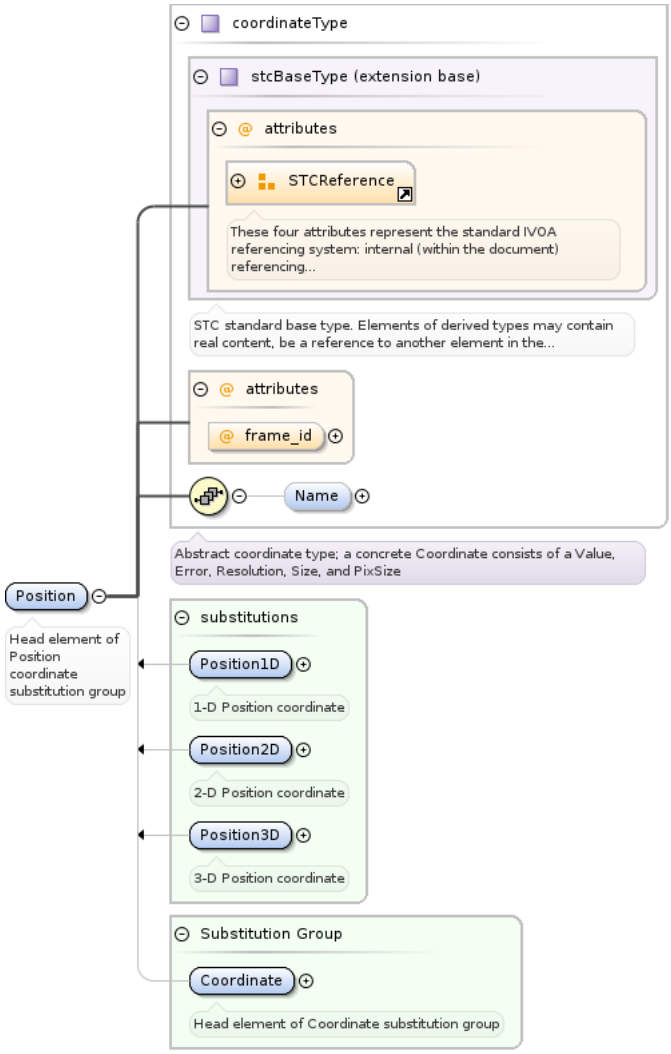
| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **idref** | xs:IDREF | | | optional |
| | **pos_angle_unit** | angleUnitType | | | optional |
| | **pos_unit** | posUnitType | | | optional |
| | **spectral_unit** | spectralUnitType | | | optional |
| | **time_unit** | timeUnitType | | | optional |
| | **ucd** | xs:string | | | optional |
| | **vel_time_unit** | velTimeUnitType | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:element name="PixSize" type="double1Type" substitutionGroup="CPixSize"
 nillable="true">
  <xs:annotation>
    <xs:documentation>double</xs:documentation>
  </xs:annotation>
</xs:element>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Element `Position`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `Head element of Position coordinate substitution group` |
| Diagram |  |
| Type | coordinateType |

| | |
|---|---|
| Type hierarchy | • stcBaseType<br>  • coordinateType |
| Properties | content: `complex`<br>nillable: `true` |
| `Substitution Group` | • Position1D<br>• Position2D<br>• Position3D |
| `Substitution Group Affiliation` | • Coordinate |
| Used by | Complex Type astroCoordsType |
| Model | Name{0,1} |
| Children | Name |

`Instance`

```
<Position frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" x
www.ivoa.net/xml/STC/stc-v1.30.xsd">
  <Name>{0,1}</Name>
</Position>
```

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **frame_id** | xs:IDREF | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

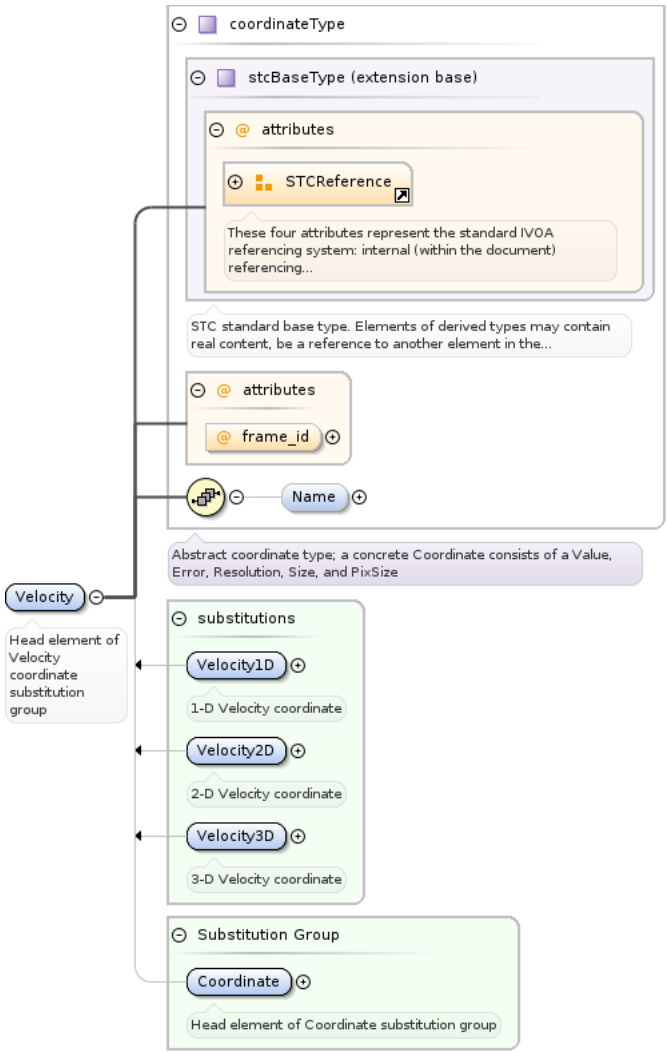
`Source`

```
<xs:element name="Position" type="coordinateType" substitutionGroup="Coordinate"
 nillable="true">
  <xs:annotation>
    <xs:documentation>Head element of Position coordinate substitution group</
xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `Velocity`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `Head element of Velocity coordinate substitution group` |

| | |
|---|---|
| Diagram |  |
| Type | coordinateType |
| Type hierarchy | • stcBaseType<br>  • coordinateType |
| Properties | content: complex<br>nillable: true |
| Substitution Group | • Velocity1D<br>• Velocity2D<br>• Velocity3D |
| Substitution Group Affiliation | • Coordinate |
| Used by | Complex Type astroCoordsType |
| Model | Name{0,1} |
| Children | Name |
| Instance | <Velocity frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" x<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <Name>{0,1}</Name><br></Velocity> |

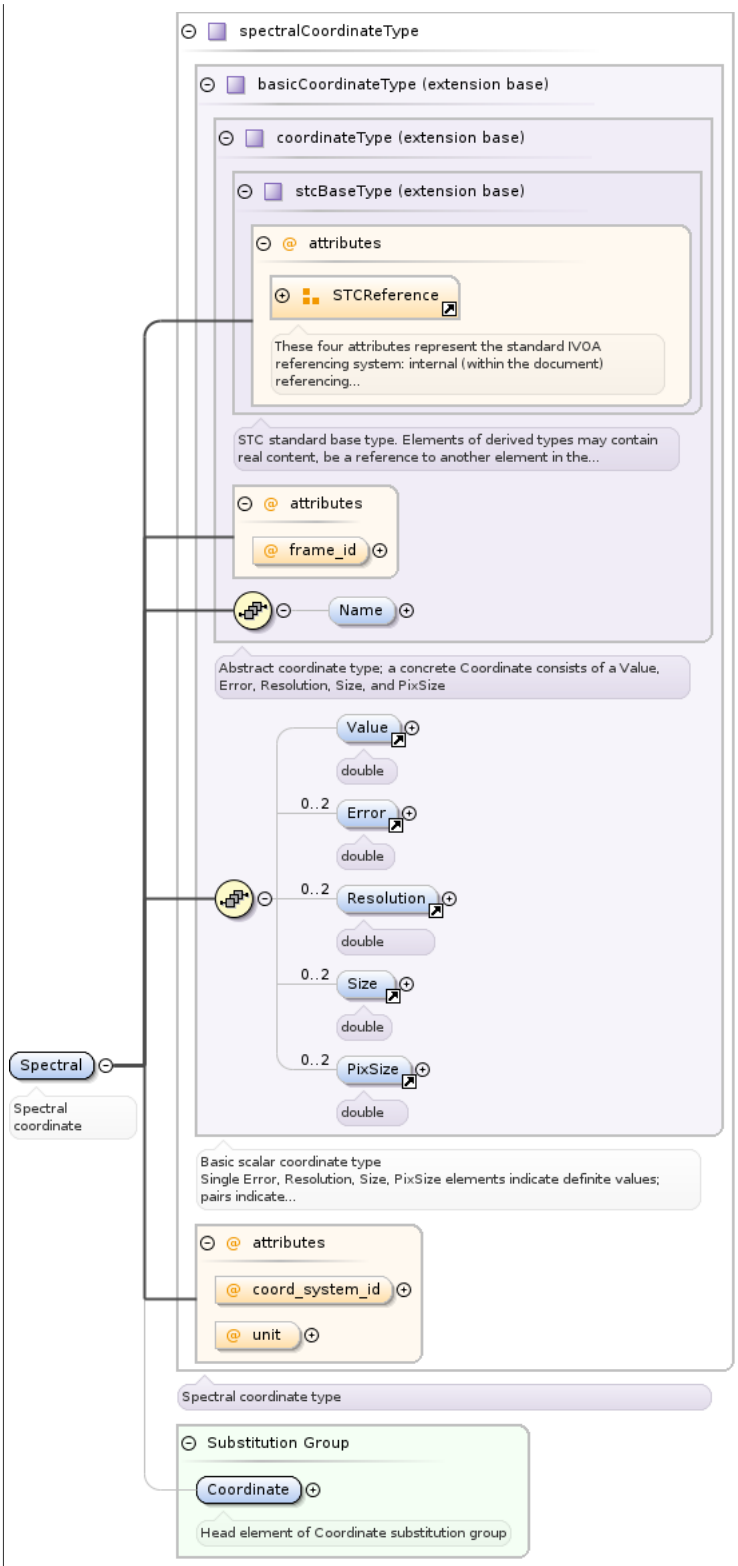
Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **frame_id** | xs:IDREF | | | optional |

| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **id** | xs:ID | | | optional |
| | **idref** | xs:IDREF | | | optional |
| | **ucd** | xs:string | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |
| Source | <xs:element name="Velocity" type="coordinateType" substitutionGroup="Coordinate" nillable="true"> <xs:annotation> <xs:documentation>Head element of Velocity coordinate substitution group</ xs:documentation> </xs:annotation> </xs:element> | | | | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | | | | |

## Element Spectral

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Spectral coordinate |

| | |
|---|---|
| Diagram |  |
| Type | spectralCoordinateType |
| Type hierarchy | • stcBaseType<br>• coordinateType<br>• basicCoordinateType<br>• spectralCoordinateType |
| Properties | content: complex |

| | |
|---|---|
| | nillable: `true` |
| `Substitution Group Affiliation` | • Coordinate |
| Used by | Complex Type astroCoordsType |
| Model | Name{0,1} , Value{0,1} , Error{0,2} , Resolution{0,2} , Size{0,2} , PixSize{0,2} |
| Children | Error, Name, PixSize, Resolution, Size, Value |
| `Instance` | `<Spectral coord_system_id="" frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:typ`<br>`www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Name>{0,1}</Name>`<br>`  <Value gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" Value>`<br>`  <Error gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" Error>`<br>`  <Resolution gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_un Resolution>`<br>`  <Size gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" Size>`<br>`  <PixSize gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit= PixSize>`<br>`</Spectral>` |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **frame_id** | xs:IDREF | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | spectralUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

`Source`

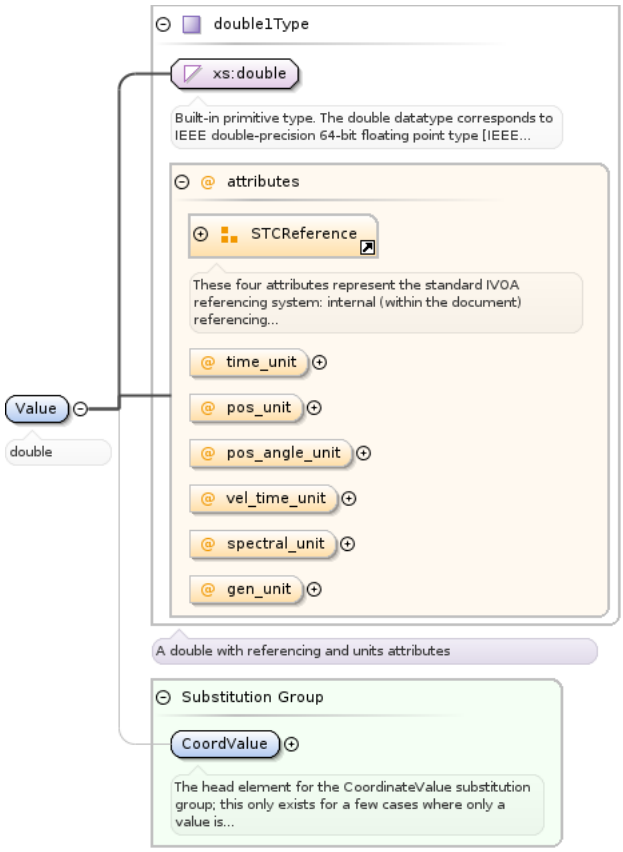
```
<xs:element name="Spectral" type="spectralCoordinateType" substitutionGroup="Coordinate"
 nillable="true">
  <xs:annotation>
    <xs:documentation>Spectral coordinate</xs:documentation>
  </xs:annotation>
</xs:element>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Element `Value`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `double` |

Diagram




Type: double1Type

Properties

| | |
|---|---|
| content: | complex |
| nillable: | true |

Substitution Group Affiliation

- CoordValue

Used by

| | |
|---|---|
| Complex Types | basicCoordinateType, pixelVector1CoordinateType, posVector1CoordinateType, redshiftCoordinateType, scalarCoordinateType, spectralCoordinateType, velVector1CoordinateType |

Attributes

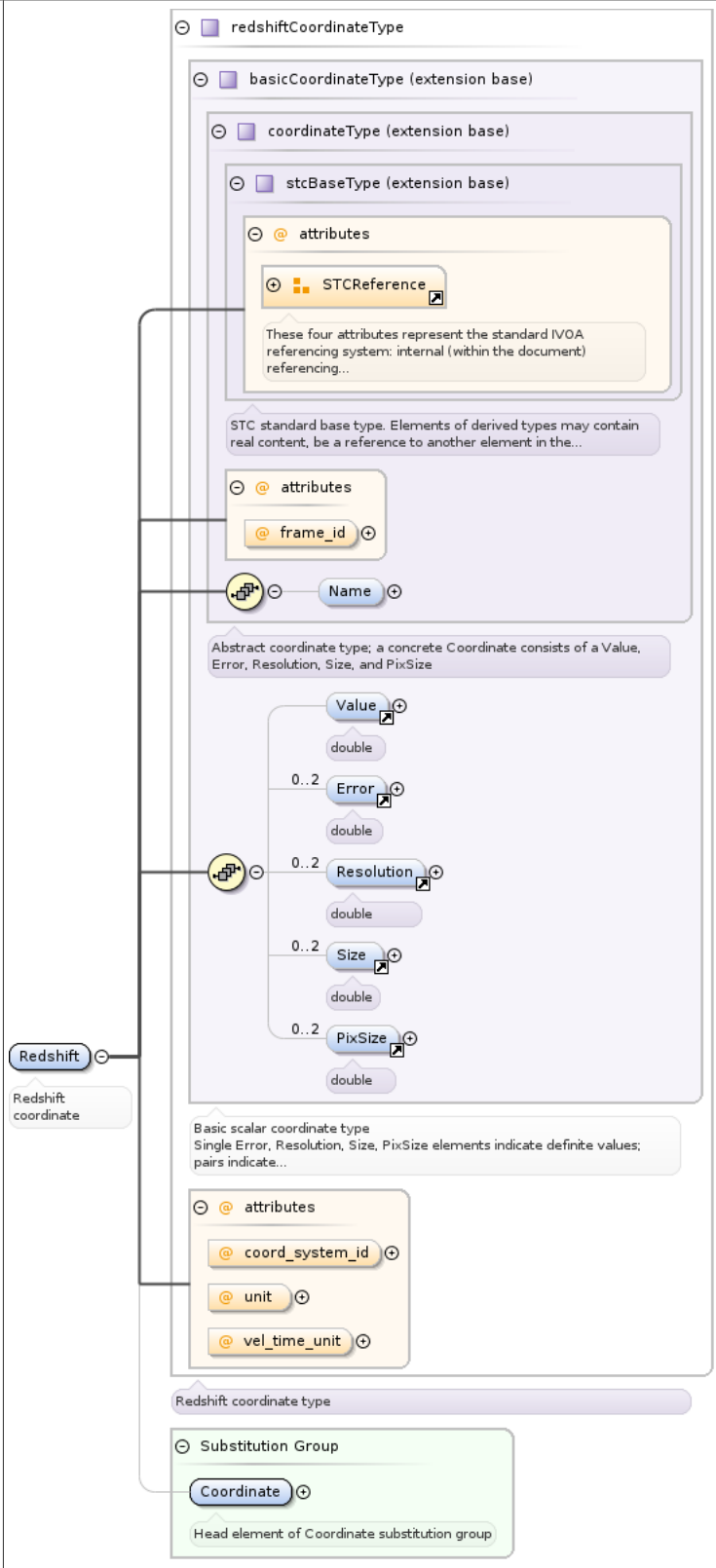
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **pos_angle_unit** | angleUnitType | | | optional |
| **pos_unit** | posUnitType | | | optional |
| **spectral_unit** | spectralUnitType | | | optional |
| **time_unit** | timeUnitType | | | optional |
| **ucd** | xs:string | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:element name="Value" type="double1Type" substitutionGroup="CoordValue"
 nillable="true">
  <xs:annotation>
    <xs:documentation>double</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `Redshift`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `Redshift coordinate` |
| Diagram |  |
| Type | redshiftCoordinateType |

| | |
|---|---|
| Type hierarchy | • stcBaseType<br>  • coordinateType<br>  • basicCoordinateType<br>  • redshiftCoordinateType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • Coordinate |
| Used by | Complex Type astroCoordsType |
| Model | Name{0,1} , Value{0,1} , Error{0,2} , Resolution{0,2} , Size{0,2} , PixSize{0,2} |
| Children | Error, Name, PixSize, Resolution, Size, Value |
| Instance | <Redshift coord_system_id="" frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:typ<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <Name>{0,1}</Name><br>  <Value gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit=""<br>Value><br>  <Error gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit=""<br>Error><br>  <Resolution gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_un<br>Resolution><br>  <Size gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit=""<br>Size><br>  <PixSize gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit=<br>PixSize><br></Redshift> |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **frame_id** | xs:IDREF | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

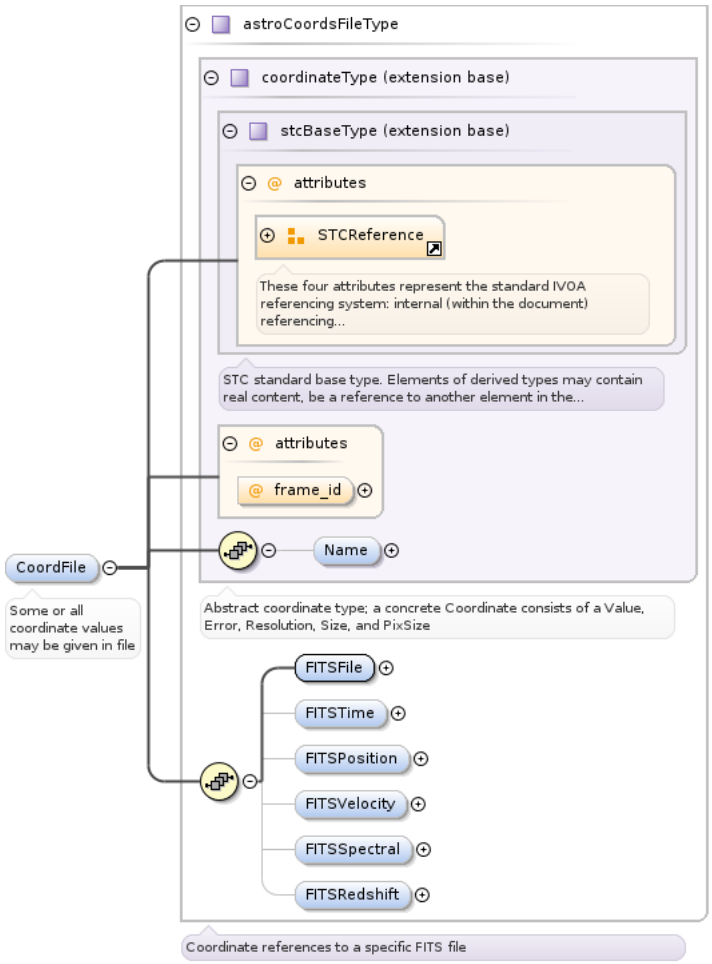
Source

```
<xs:element name="Redshift" type="redshiftCoordinateType" substitutionGroup="Coordinate"
 nillable="true">
  <xs:annotation>
    <xs:documentation>Redshift coordinate</xs:documentation>
  </xs:annotation>
</xs:element>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Element astroCoordsType / CoordFile

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Some or all coordinate values may be given in file |

| | |
|---|---|
| Diagram |  |
| Type | astroCoordsFileType |
| Type hierarchy | • stcBaseType<br>  • coordinateType<br>  • astroCoordsFileType |
| Properties | content: complex<br>minOccurs: 0<br>nillable: true |
| Model | Name{0,1} , FITSFile , FITSTime{0,1} , FITSPosition{0,1} , FITSVelocity{0,1} , FITSSpectral{0,1} , FITSRedshift{0,1} |
| Children | FITSFile, FITSPosition, FITSRedshift, FITSSpectral, FITSTime, FITSVelocity, Name |
| Instance | `<CoordFile frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Name>{0,1}</Name>`<br>`  <FITSFile hdu_name="" hdu_num="">{1,1}</FITSFile>`<br>`  <FITSTime>{0,1}</FITSTime>`<br>`  <FITSPosition>{0,1}</FITSPosition>`<br>`  <FITSVelocity>{0,1}</FITSVelocity>`<br>`  <FITSSpectral>{0,1}</FITSSpectral>`<br>`  <FITSRedshift>{0,1}</FITSRedshift>`<br>`</CoordFile>` |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **frame_id** | xs:IDREF | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |

| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **ucd** | xs:string | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

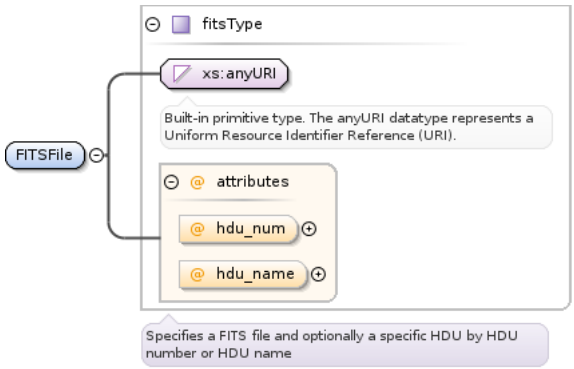
```
<xs:element name="CoordFile" type="astroCoordsFileType" nillable="true" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Some or all coordinate values may be given in file</
xs:documentation>
  </xs:annotation>
</xs:element>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Element `astroCoordsFileType / FITSFile`

Namespace: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

Diagram




Type: fitsType

Properties: content: complex

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **hdu_name** | xs:string | | | optional |
| **hdu_num** | xs:integer | | | optional |

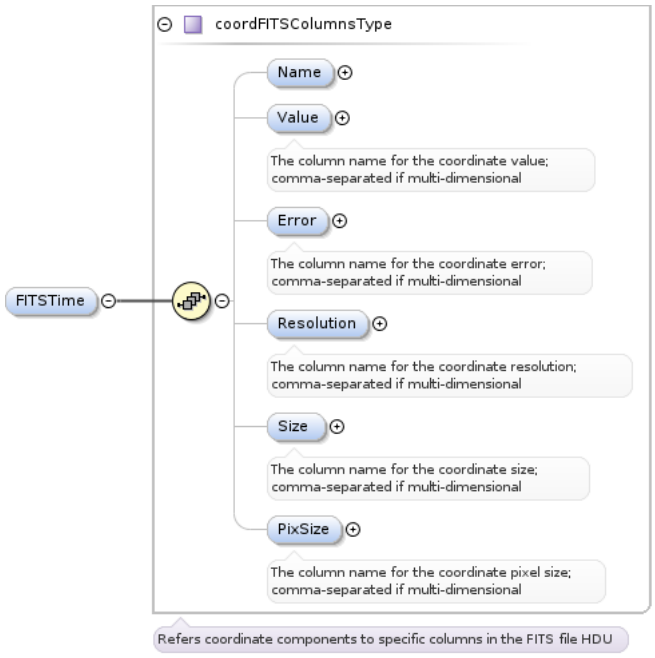
Source

```
<xs:element name="FITSFile" type="fitsType"/>
```

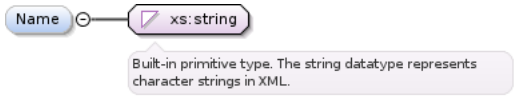
Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Element `astroCoordsFileType / FITSTime`

Namespace: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

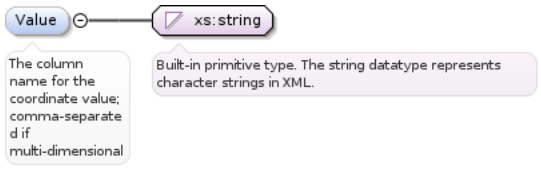
| | |
|---|---|
| Diagram |  |
| Type | coordFITSColumnsType |
| Properties | content: complex<br>minOccurs: 0 |
| Model | Name{0,1} , Value{0,1} , Error{0,1} , Resolution{0,1} , Size{0,1} , PixSize{0,1} |
| Children | Error, Name, PixSize, Resolution, Size, Value |
| Instance | <FITSTime xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <Name>{0,1}</Name><br>  <Value>{0,1}</Value><br>  <Error>{0,1}</Error><br>  <Resolution>{0,1}</Resolution><br>  <Size>{0,1}</Size><br>  <PixSize>{0,1}</PixSize><br></FITSTime> |
| Source | <xs:element name="FITSTime" type="coordFITSColumnsType" minOccurs="0"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element coordFITSColumnsType / Name

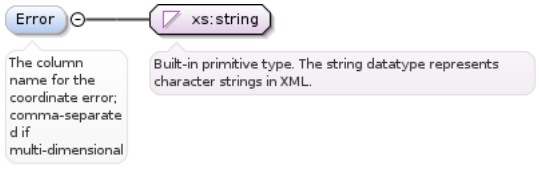
| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Diagram |  |
| Type | xs:string |
| Properties | content: simple<br>minOccurs: 0 |
| Source | <xs:element name="Name" type="xs:string" minOccurs="0"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element coordFITSColumnsType / Value

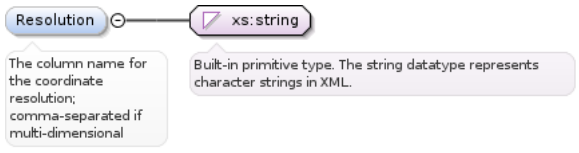
| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The column name for the coordinate value; comma-separated if multi-dimensional |

| | |
|---|---|
| Diagram |  |
| Type | xs:string |
| Properties | content: simple<br>minOccurs: 0 |
| Source | `<xs:element name="Value" type="xs:string" minOccurs="0">`<br>`  <xs:annotation>`<br>`  <xs:documentation>The column name for the coordinate value; comma-separated if multi-dimensional</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element coordFITSColumnsType / Error

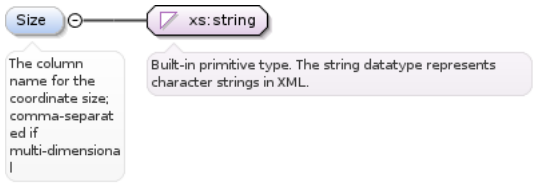
| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The column name for the coordinate error; comma-separated if multi-dimensional |
| Diagram |  |
| Type | xs:string |
| Properties | content: simple<br>minOccurs: 0 |
| Source | `<xs:element name="Error" type="xs:string" minOccurs="0">`<br>`  <xs:annotation>`<br>`  <xs:documentation>The column name for the coordinate error; comma-separated if multi-dimensional</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element coordFITSColumnsType / Resolution

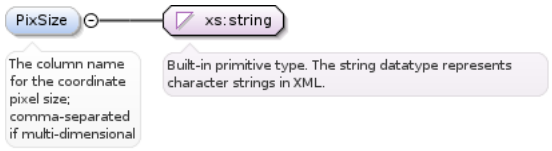
| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The column name for the coordinate resolution; comma-separated if multi-dimensional |
| Diagram |  |
| Type | xs:string |
| Properties | content: simple<br>minOccurs: 0 |
| Source | `<xs:element name="Resolution" type="xs:string" minOccurs="0">`<br>`  <xs:annotation>`<br>`  <xs:documentation>The column name for the coordinate resolution; comma-separated if multi-dimensional</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element coordFITSColumnsType / Size

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

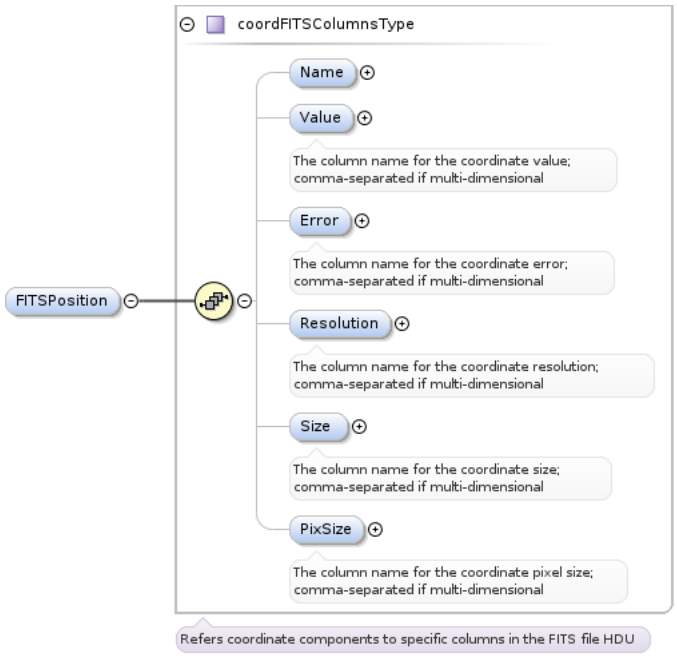
| | |
|---|---|
| Annotations | The column name for the coordinate size; comma-separated if multi-dimensional |
| Diagram |  |
| Type | xs:string |
| Properties | content: simple<br>minOccurs: 0 |
| Source | <xs:element name="Size" type="xs:string" minOccurs="0"><br><xs:annotation><br><xs:documentation>The column name for the coordinate size; comma-separated if multi-dimensional</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element coordFITSColumnsType / PixSize

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The column name for the coordinate pixel size; comma-separated if multi-dimensional |
| Diagram |  |
| Type | xs:string |
| Properties | content: simple<br>minOccurs: 0 |
| Source | <xs:element name="PixSize" type="xs:string" minOccurs="0"><br><xs:annotation><br><xs:documentation>The column name for the coordinate pixel size; comma-separated if multi-dimensional</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

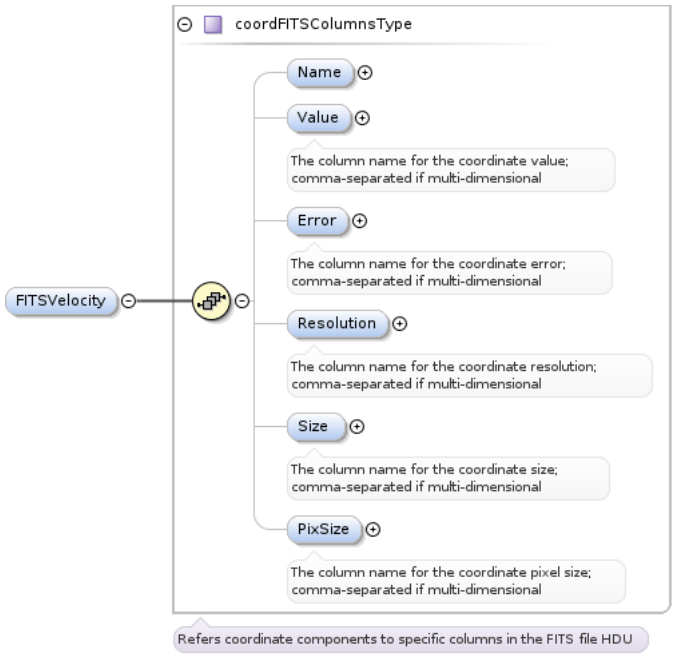
## Element astroCoordsFileType / FITSPosition

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

| | |
|---|---|
| Diagram |  |
| Type | coordFITSColumnsType |
| Properties | content: complex<br>minOccurs: 0 |
| Model | Name{0,1} , Value{0,1} , Error{0,1} , Resolution{0,1} , Size{0,1} , PixSize{0,1} |
| Children | Error, Name, PixSize, Resolution, Size, Value |
| Instance | <FITSPosition xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <Name>{0,1}</Name><br>  <Value>{0,1}</Value><br>  <Error>{0,1}</Error><br>  <Resolution>{0,1}</Resolution><br>  <Size>{0,1}</Size><br>  <PixSize>{0,1}</PixSize><br></FITSPosition> |
| Source | <xs:element name="FITSPosition" type="coordFITSColumnsType" minOccurs="0"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

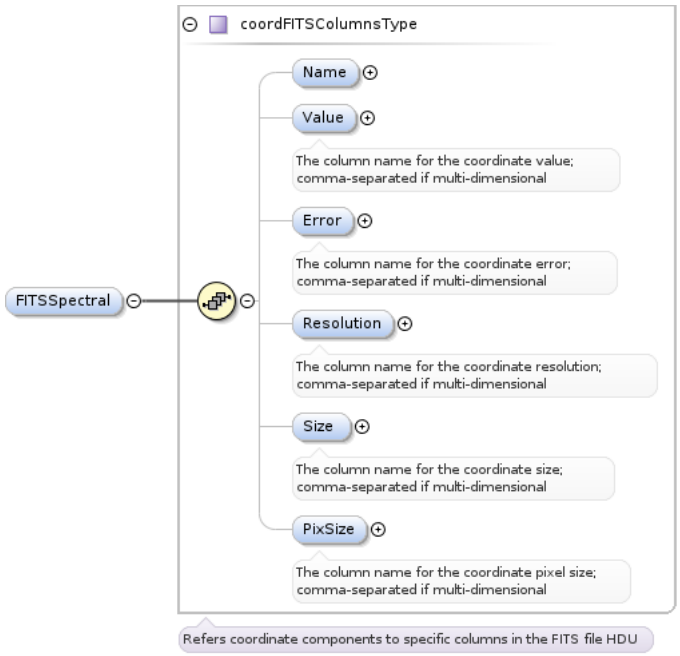
## Element astroCoordsFileType / FITSVelocity

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

| | |
|---|---|
| Diagram |  |
| Type | coordFITSColumnsType |
| Properties | content: complex<br>minOccurs: 0 |
| Model | Name{0,1} , Value{0,1} , Error{0,1} , Resolution{0,1} , Size{0,1} , PixSize{0,1} |
| Children | Error, Name, PixSize, Resolution, Size, Value |
| Instance | <FITSVelocity xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <Name>{0,1}</Name><br>  <Value>{0,1}</Value><br>  <Error>{0,1}</Error><br>  <Resolution>{0,1}</Resolution><br>  <Size>{0,1}</Size><br>  <PixSize>{0,1}</PixSize><br></FITSVelocity> |
| Source | <xs:element name="FITSVelocity" type="coordFITSColumnsType" minOccurs="0"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

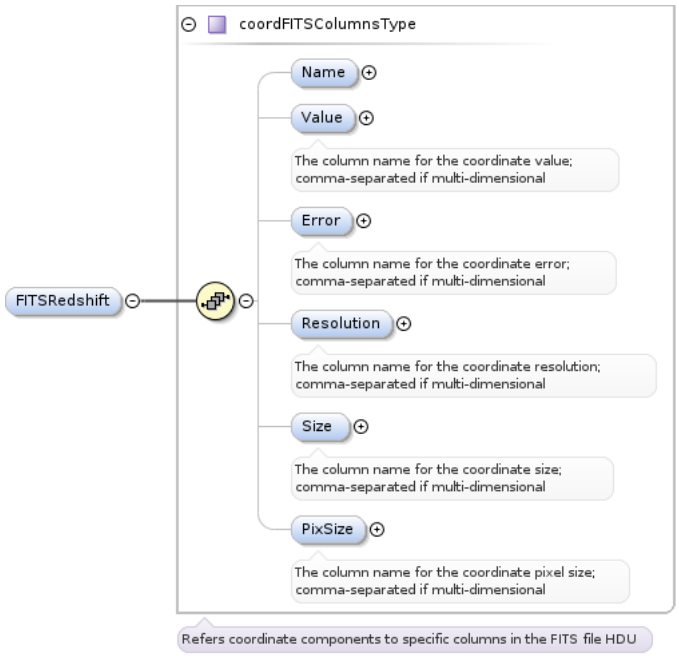
## Element astroCoordsFileType / FITSSpectral

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

| | |
|---|---|
| Diagram |  |
| Type | coordFITSColumnsType |
| Properties | content: complex<br>minOccurs: 0 |
| Model | Name{0,1} , Value{0,1} , Error{0,1} , Resolution{0,1} , Size{0,1} , PixSize{0,1} |
| Children | Error, Name, PixSize, Resolution, Size, Value |
| Instance | <FITSSpectral xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <Name>{0,1}</Name><br>  <Value>{0,1}</Value><br>  <Error>{0,1}</Error><br>  <Resolution>{0,1}</Resolution><br>  <Size>{0,1}</Size><br>  <PixSize>{0,1}</PixSize><br></FITSSpectral> |
| Source | <xs:element name="FITSSpectral" type="coordFITSColumnsType" minOccurs="0"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

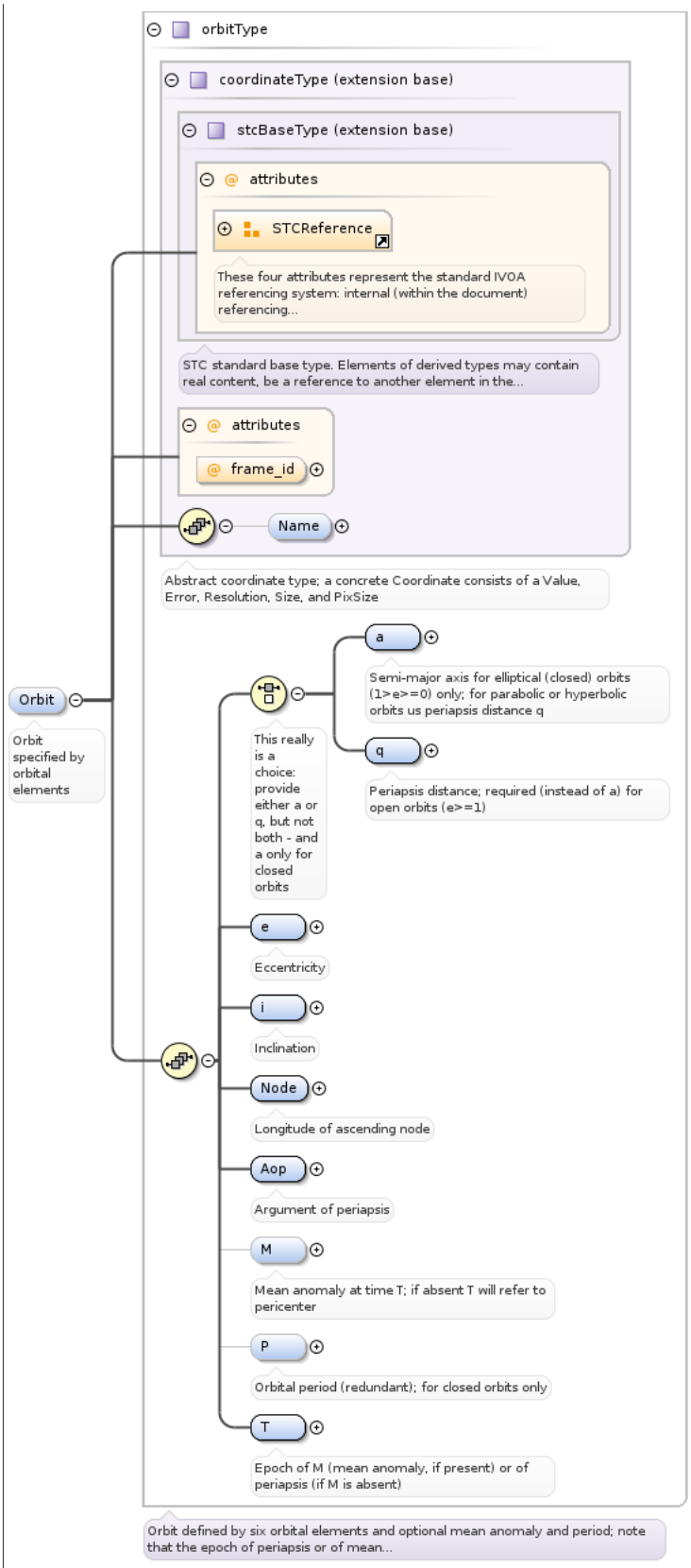
## Element astroCoordsFileType / FITSRedshift

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

| | |
|---|---|
| Diagram |  |
| Type | coordFITSColumnsType |
| Properties | content: complex<br>minOccurs: 0 |
| Model | Name{0,1} , Value{0,1} , Error{0,1} , Resolution{0,1} , Size{0,1} , PixSize{0,1} |
| Children | Error, Name, PixSize, Resolution, Size, Value |
| Instance | <FITSRedshift xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <Name>{0,1}</Name><br>  <Value>{0,1}</Value><br>  <Error>{0,1}</Error><br>  <Resolution>{0,1}</Resolution><br>  <Size>{0,1}</Size><br>  <PixSize>{0,1}</PixSize><br></FITSRedshift> |
| Source | <xs:element name="FITSRedshift" type="coordFITSColumnsType" minOccurs="0"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element astroCoordsType / Orbit

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Orbit specified by orbital elements |

| | |
|---|---|
| Diagram |  |
| Type | orbitType |
| Type hierarchy | • stcBaseType<br>  • coordinateType<br>  • orbitType |

| | |
|---|---|
| Properties | content: complex<br>minOccurs: 0<br>nillable: true |
| Model | Name{0,1} , (a \| q) , e , i , Node , Aop , M{0,1} , P{0,1} , T |
| Children | Aop, M, Name, Node, P, T, a, e, i, q |
| Instance | <Orbit frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" xmln<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br><Name>{0,1}</Name><br><a gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" spe<br>a><br><q gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" spe<br>q><br><e gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" spe<br>e><br><i gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" spe<br>i><br><Node gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit=""<br>Node><br><Aop gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" s<br>Aop><br><M gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" spe<br>M><br><P gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" spe<br>P><br><T>{1,1}</T><br></Orbit> |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **frame_id** | xs:IDREF | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

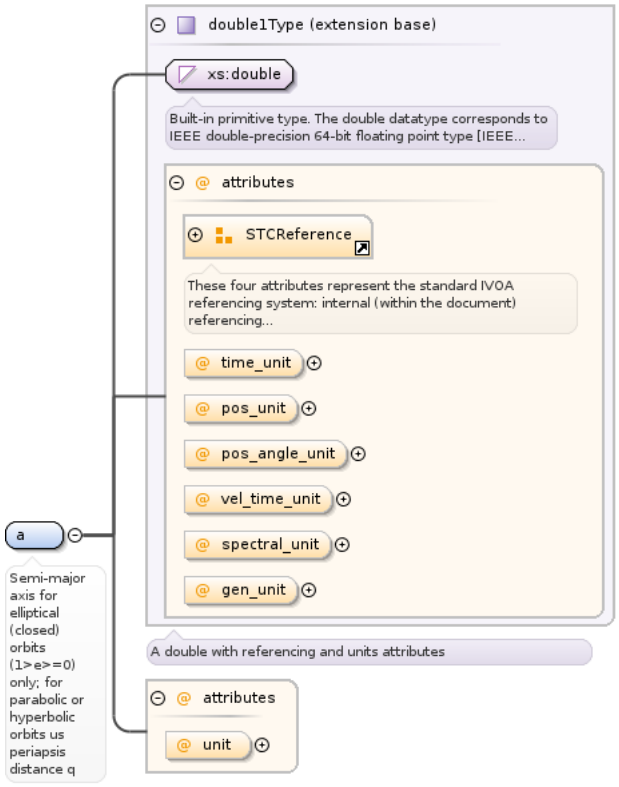
```
<xs:element name="Orbit" type="orbitType" nillable="true" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Orbit specified by orbital elements</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element orbitType / a

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Semi-major axis for elliptical (closed) orbits (1>e>=0) only; for parabolic or hyperbolic orbits us periapsis distance q |

Diagram




Type: extension of double1Type

Type hierarchy:

- xs:double
  - double1Type

Properties

| | |
|---|---|
| content: | complex |
| nillable: | true |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **pos_angle_unit** | angleUnitType | | | optional |
| **pos_unit** | posUnitType | | | optional |
| **spectral_unit** | spectralUnitType | | | optional |
| **time_unit** | timeUnitType | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | AU | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

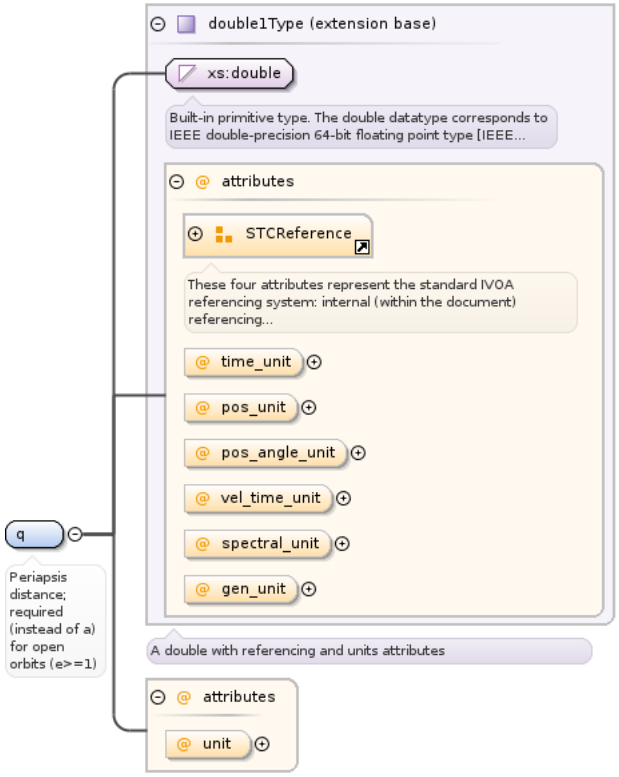
Source

```
<xs:element name="a" nillable="true">
  <xs:annotation>
    <xs:documentation>Semi-major axis for elliptical (closed) orbits (1>e>=0) only; for
 parabolic or hyperbolic orbits us periapsis distance q</xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:complexContent>
      <xs:extension base="double1Type">
        <xs:attribute name="unit" type="posUnitType" use="optional" default="AU"/>
      </xs:extension>
```

```
    </xs:complexContent>
  </xs:complexType>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `orbitType / q`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `Periapsis distance; required (instead of a) for open orbits (e>=1)` |
| Diagram |  |
| Type | extension of double1Type |
| Type hierarchy | • xs:double<br>  • double1Type |
| Properties | content: `complex`<br>nillable: `true` |

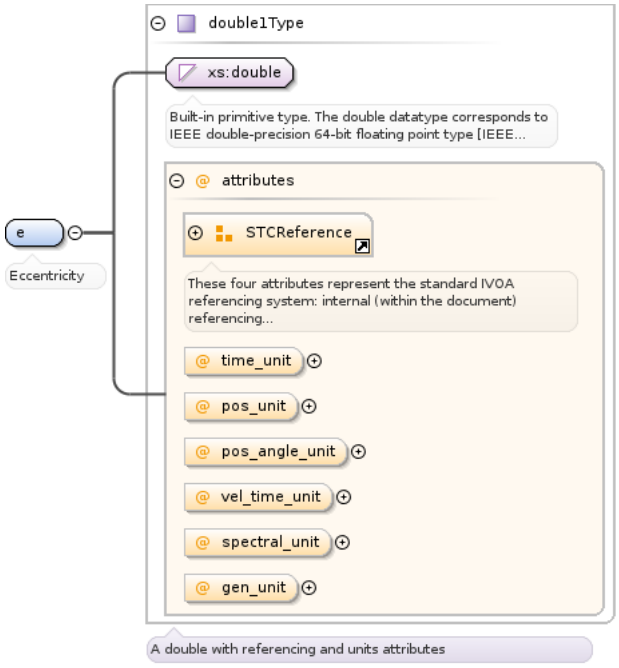


Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **pos_angle_unit** | angleUnitType | | | optional |
| **pos_unit** | posUnitType | | | optional |
| **spectral_unit** | spectralUnitType | | | optional |
| **time_unit** | timeUnitType | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | AU | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

| | |
|---|---|
| Source | <xs:element name="q" nillable="true"><br><xs:annotation><br><xs:documentation>Periapsis distance; required (instead of a) for open orbits (e>=1)</xs:documentation><br></xs:annotation><br><xs:complexType><br><xs:complexContent><br><xs:extension base="double1Type"><br><xs:attribute name="unit" type="posUnitType" use="optional" default="AU"/><br></xs:extension><br></xs:complexContent><br></xs:complexType><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `orbitType / e`

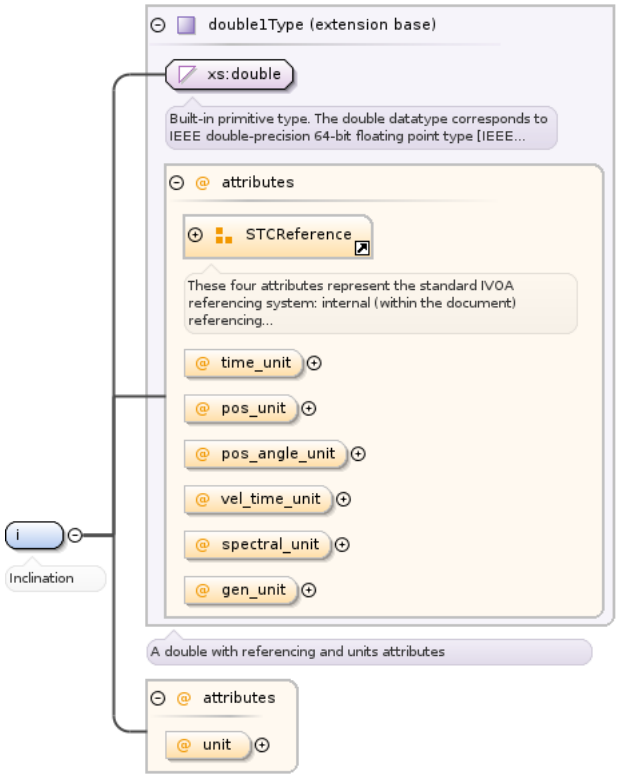
| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Eccentricity |
| Diagram |  |
| Type | double1Type |
| Properties | content: complex<br>nillable: true |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **pos_angle_unit** | angleUnitType | | | optional |
| **pos_unit** | posUnitType | | | optional |
| **spectral_unit** | spectralUnitType | | | optional |
| **time_unit** | timeUnitType | | | optional |
| **ucd** | xs:string | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

| | |
|---|---|
| Source | <xs:element name="e" type="double1Type" nillable="true"><br>  <xs:annotation><br>  <xs:documentation>Eccentricity</xs:documentation><br>  </xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element orbitType / i

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Inclination |
| Diagram |  |
| Type | extension of double1Type |
| Type hierarchy | • xs:double<br>  • double1Type |
| Properties | content: complex<br>nillable: true |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **pos_angle_unit** | angleUnitType | | | optional |
| **pos_unit** | posUnitType | | | optional |
| **spectral_unit** | spectralUnitType | | | optional |
| **time_unit** | timeUnitType | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | deg | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |

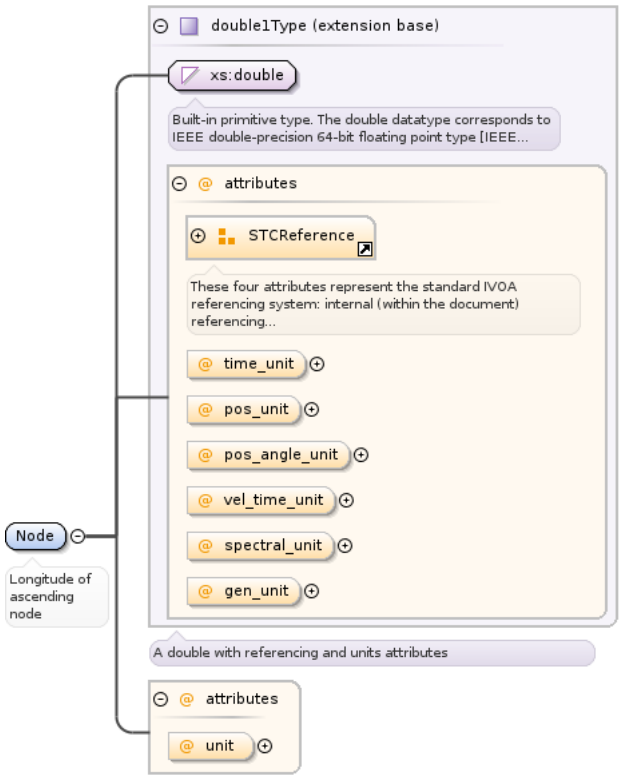
| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:element name="i" nillable="true">
  <xs:annotation>
    <xs:documentation>Inclination</xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:complexContent>
      <xs:extension base="double1Type">
        <xs:attribute name="unit" type="posUnitType" use="optional" default="deg"/>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
</xs:element>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Element `orbitType / Node`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Longitude of ascending node |
| Diagram |  |
| Type | extension of double1Type |
| Type hierarchy | • xs:double<br>  • double1Type |
| Properties | content: complex<br>nillable: true |



Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **pos_angle_unit** | angleUnitType | | | optional |

| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **pos_unit** | posUnitType | | | optional |
| | **spectral_unit** | spectralUnitType | | | optional |
| | **time_unit** | timeUnitType | | | optional |
| | **ucd** | xs:string | | | optional |
| | **unit** | posUnitType | | deg | optional |
| | **vel_time_unit** | velTimeUnitType | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:element name="Node" nillable="true">
  <xs:annotation>
    <xs:documentation>Longitude of ascending node</xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:complexContent>
      <xs:extension base="double1Type">
        <xs:attribute name="unit" type="posUnitType" use="optional" default="deg"/>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
</xs:element>
```

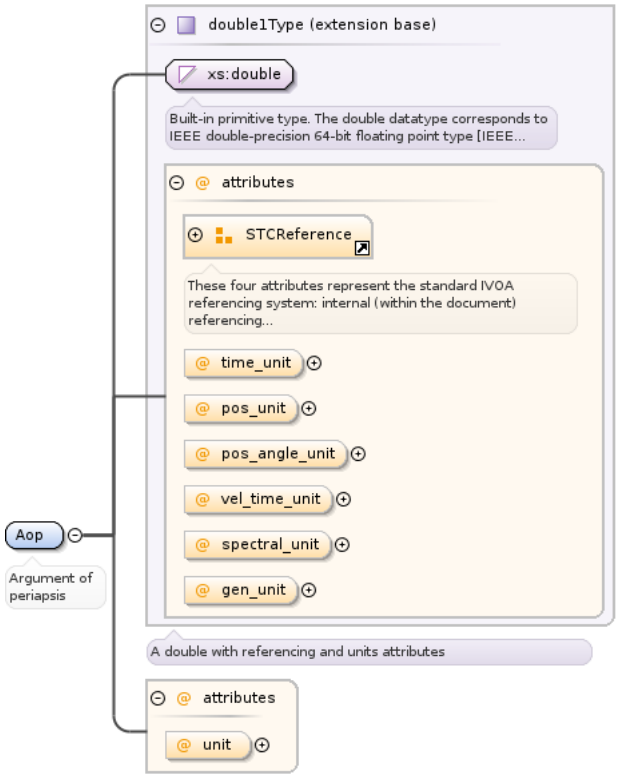
Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Element `orbitType / Aop`

Namespace: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

Annotations: `Argument of periapsis`

Diagram




Type: extension of double1Type

Type hierarchy:

- xs:double
  - double1Type

Properties

| | |
|---|---|
| content: | `complex` |
| nillable: | `true` |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **pos_angle_unit** | angleUnitType | | | optional |
| **pos_unit** | posUnitType | | | optional |
| **spectral_unit** | spectralUnitType | | | optional |
| **time_unit** | timeUnitType | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | deg | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:element name="Aop" nillable="true">
  <xs:annotation>
    <xs:documentation>Argument of periapsis</xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:complexContent>
      <xs:extension base="double1Type">
        <xs:attribute name="unit" type="posUnitType" use="optional" default="deg"/>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
</xs:element>
```

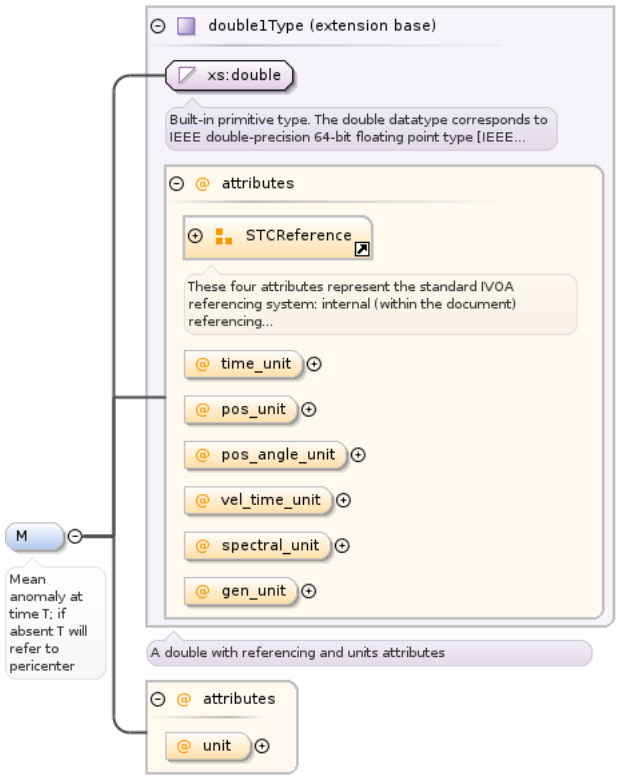
Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Element `orbitType / M`

Namespace: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

Annotations: `Mean anomaly at time T; if absent T will refer to pericenter`

Diagram



| | |
|---|---|
| Type | extension of double1Type |
| Type hierarchy | • xs:double<br>  • double1Type |
| Properties | content: `complex`<br>minOccurs: `0`<br>nillable: `true` |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **pos_angle_unit** | angleUnitType | | | optional |
| **pos_unit** | posUnitType | | | optional |
| **spectral_unit** | spectralUnitType | | | optional |
| **time_unit** | timeUnitType | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | deg | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

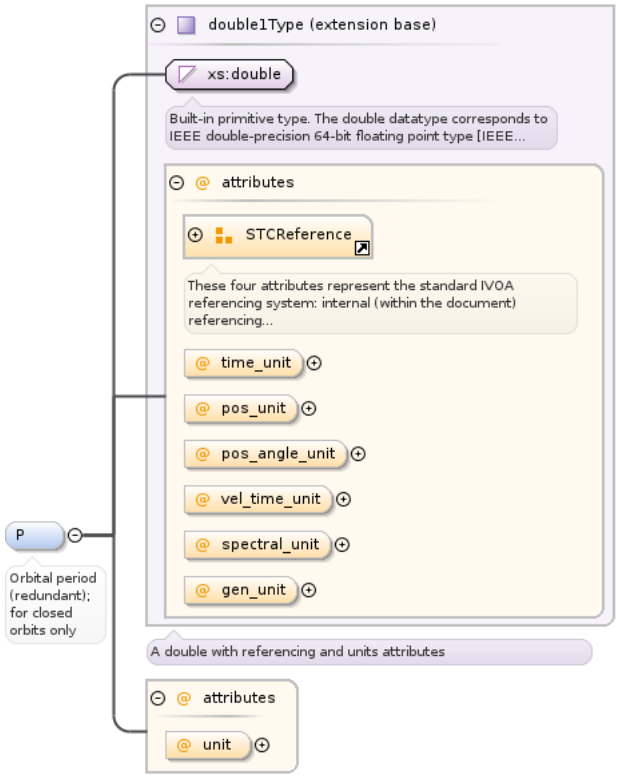
Source

```
<xs:element name="M" nillable="true" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Mean anomaly at time T; if absent T will refer to pericenter</
xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:complexContent>
      <xs:extension base="double1Type">
        <xs:attribute name="unit" type="posUnitType" use="optional" default="deg"/>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `orbitType / P`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `Orbital period (redundant); for closed orbits only` |

| | |
|---|---|
| Diagram |  |
| Type | extension of double1Type |
| Type hierarchy | • xs:double<br>  • double1Type |
| Properties | content: complex<br>minOccurs: 0<br>nillable: true |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **pos_angle_unit** | angleUnitType | | | optional |
| **pos_unit** | posUnitType | | | optional |
| **spectral_unit** | spectralUnitType | | | optional |
| **time_unit** | timeUnitType | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | timeUnitType | | d | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

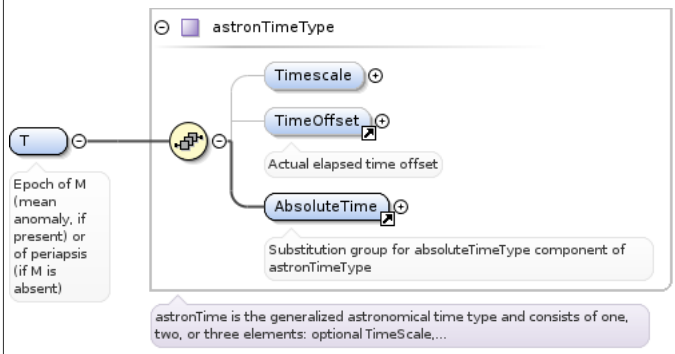
Source

```
<xs:element name="P" nillable="true" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Orbital period (redundant); for closed orbits only</
xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:complexContent>
      <xs:extension base="double1Type">
        <xs:attribute name="unit" type="timeUnitType" use="optional" default="d"/>
```

```
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
</xs:element>
```

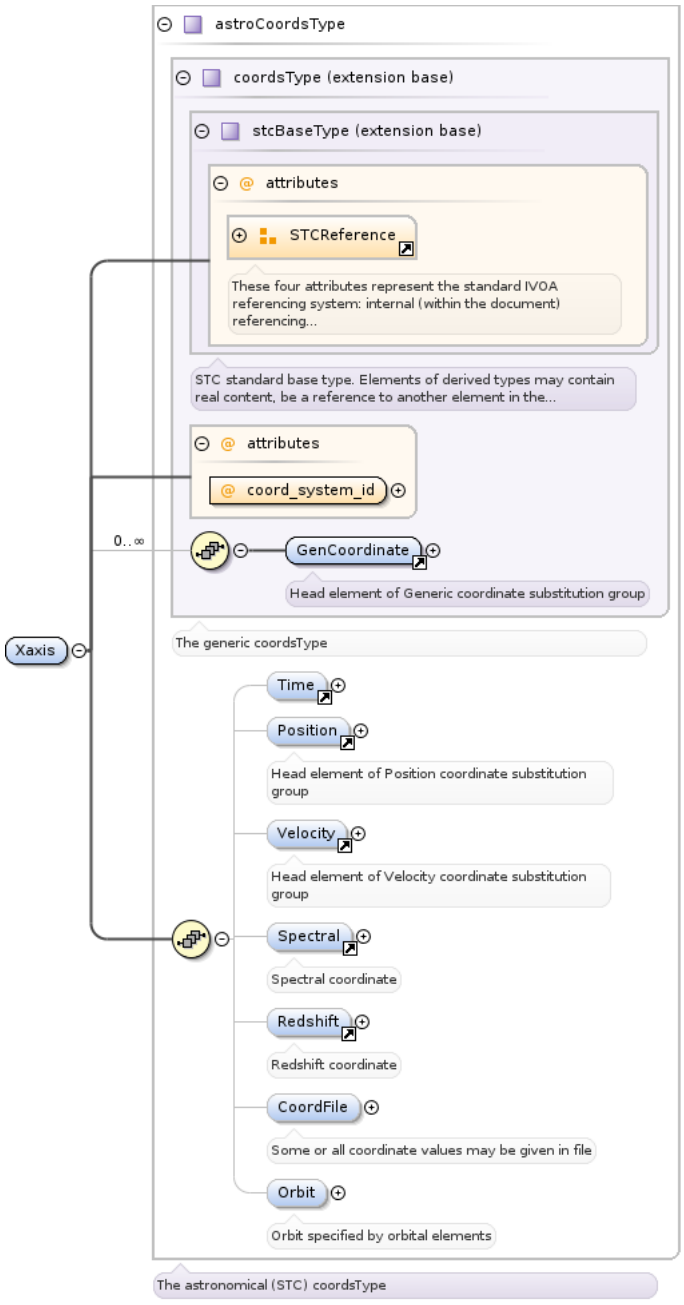
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
|---|---|

## Element orbitType / T

| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
|---|---|
| Annotations | Epoch of M (mean anomaly, if present) or of periapsis (if M is absent) |
| Diagram |  |
| Type | astronTimeType |
| Properties | content: complex |
| Model | Timescale{0,1} , TimeOffset{0,1} , AbsoluteTime |
| Children | AbsoluteTime, TimeOffset, Timescale |
| Instance | `<T xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Timescale>{0,1}</Timescale>`<br>`  <TimeOffset xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" unit="s">`<br>`TimeOffset>`<br>`  <AbsoluteTime>{1,1}</AbsoluteTime>`<br>`</T>` |
| Source | `<xs:element name="T" type="astronTimeType">`<br>`  <xs:annotation>`<br>`  <xs:documentation>Epoch of M (mean anomaly, if present) or of periapsis (if M is`<br>` absent)</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element sphericalRefFrameType / Xaxis

| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
|---|---|

| | |
|---|---|
| Diagram |  |
| Type | astroCoordsType |
| Type hierarchy | • stcBaseType<br>• coordsType<br>• astroCoordsType |
| Properties | content: complex<br>nillable: true |
| Model | GenCoordinate , Time{0,1} , Position{0,1} , Velocity{0,1} , Spectral{0,1} , Redshift{0,1} , CoordFile{0,1} , Orbit{0,1} |
| Children | CoordFile, GenCoordinate, Orbit, Position, Redshift, Spectral, Time, Velocity |
| Instance | <Xaxis coord_system_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd=<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br><GenCoordinate frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" u<br>GenCoordinate><br><Time coord_system_id="" frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type=<br>Time><br><Position frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd=""<br>Position> |

```
  <Velocity frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd=""
Velocity>
  <Spectral coord_system_id="" frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:t
Spectral>
  <Redshift coord_system_id="" frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:t
Redshift>
  <CoordFile frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="
CoordFile>
  <Orbit frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="">{0
Orbit>
</Xaxis>
```


Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | required |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:element name="Xaxis" type="astroCoordsType" nillable="true"/>
```

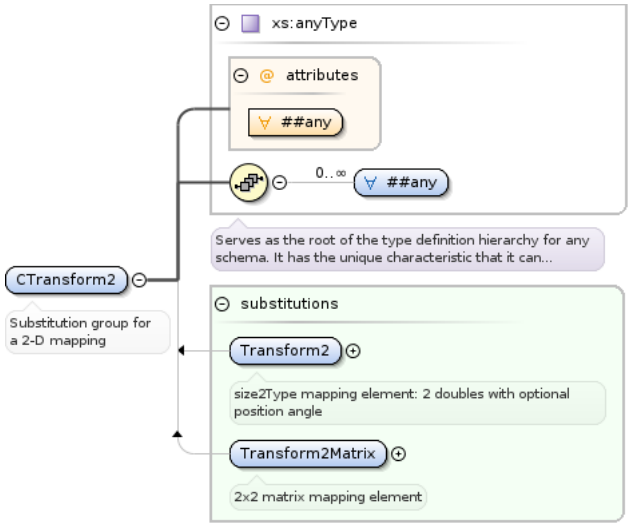
Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Element `CTransform2`

Namespace: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

Annotations: `Substitution group for a 2-D mapping`

Diagram




Properties: abstract: `true`

Substitution Group

- Transform2
- Transform2Matrix

Used by: Complex Type cart2DRefFrameType

Source

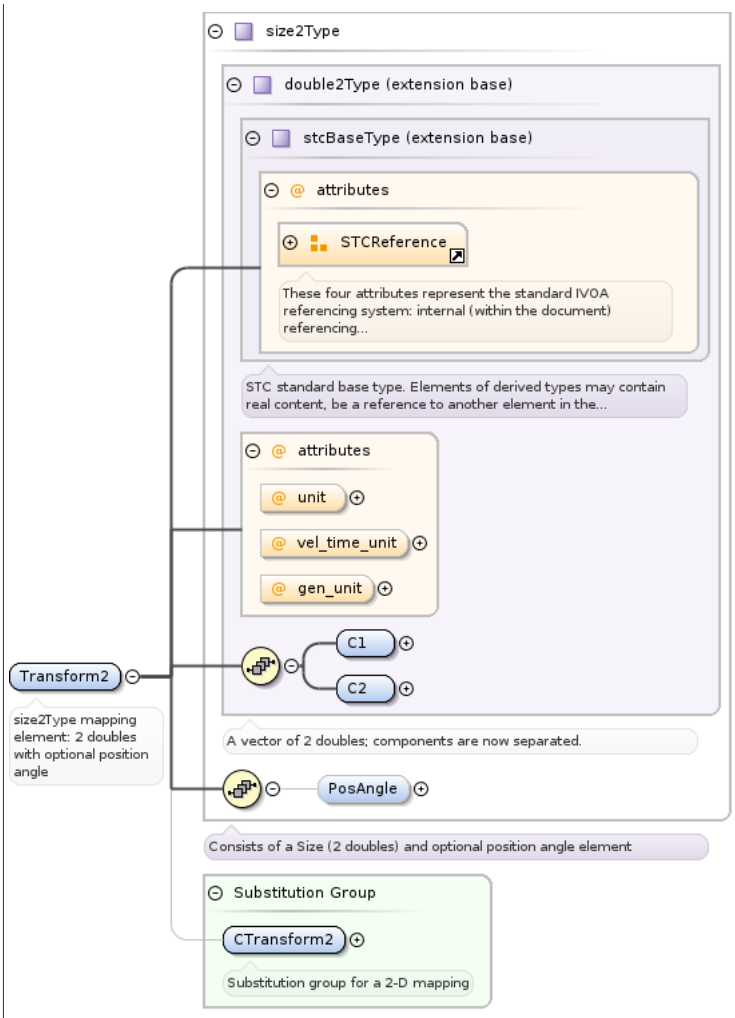
```
<xs:element name="CTransform2" type="xs:anyType" abstract="true">
  <xs:annotation>
    <xs:documentation>Substitution group for a 2-D mapping</xs:documentation>
  </xs:annotation>
</xs:element>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Element `Transform2`

Namespace: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

Annotations: `size2Type mapping element: 2 doubles with optional position angle`

| | |
|---|---|
| Diagram |  |
| Type | size2Type |
| Type hierarchy | • stcBaseType<br>  • double2Type<br>  • size2Type |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • CTransform2 |
| Model | C1 , C2 , PosAngle{0,1} |
| Children | C1, C2, PosAngle |
| Instance | <Transform2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <C1 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C1><br>  <C2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C2><br>  <PosAngle xlink:href="" id="" ID_type="" idref="" IDREF_type="" reference="X" xlink:type="simple" ucd=<br>PosAngle><br></Transform2> |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |

| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **ucd** | xs:string | | | optional |
| | **unit** | posUnitType | | | optional |
| | **vel_time_unit** | velTimeUnitType | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

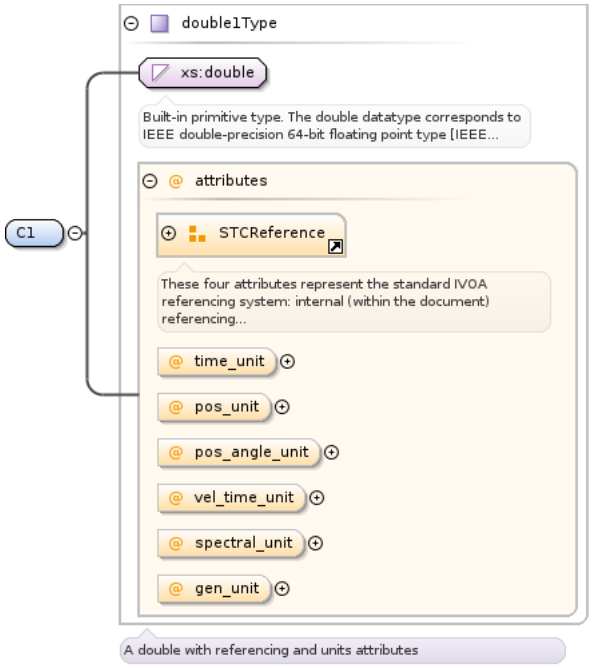
```
<xs:element name="Transform2" type="size2Type" substitutionGroup="CTransform2"
 nillable="true">
  <xs:annotation>
    <xs:documentation>size2Type mapping element: 2 doubles with optional position angle</
xs:documentation>
  </xs:annotation>
</xs:element>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Element `double2Type / C1`

Namespace: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

Diagram




Type: double1Type

Properties

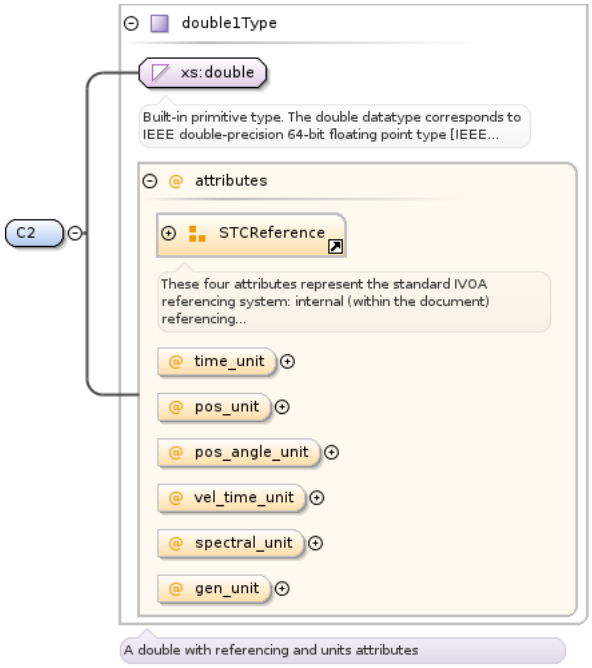
| | |
|---|---|
| content: | complex |
| nillable: | true |

Attributes

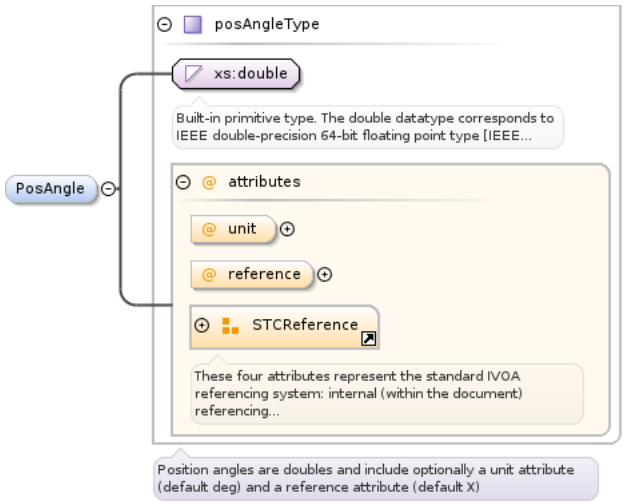
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **pos_angle_unit** | angleUnitType | | | optional |
| **pos_unit** | posUnitType | | | optional |
| **spectral_unit** | spectralUnitType | | | optional |
| **time_unit** | timeUnitType | | | optional |
| **ucd** | xs:string | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |

| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |
| Source | `<xs:element name="C1" type="double1Type" nillable="true"/>` | | | | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | | | | |

## Element `double2Type / C2`

| | | | | | |
|---|---|---|---|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | | | | |
| Diagram |  | | | | |
| Type | double1Type | | | | |
| Properties | content: `complex`<br>nillable: `true` | | | | |
| Attributes | **QName** | **Type** | **Fixed** | **Default** | **Use** |
| | **IDREF_type** | xs:string | | | optional |
| | **ID_type** | xs:string | | | optional |
| | **gen_unit** | unitType | | | optional |
| | **id** | xs:ID | | | optional |
| | **idref** | xs:IDREF | | | optional |
| | **pos_angle_unit** | angleUnitType | | | optional |
| | **pos_unit** | posUnitType | | | optional |
| | **spectral_unit** | spectralUnitType | | | optional |
| | **time_unit** | timeUnitType | | | optional |
| | **ucd** | xs:string | | | optional |
| | **vel_time_unit** | velTimeUnitType | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |
| Source | `<xs:element name="C2" type="double1Type" nillable="true"/>` | | | | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | | | | |

## Element `size2Type / PosAngle`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Diagram |  |
| Type | posAngleType |
| Properties | content: `complex`<br>minOccurs: `0`<br>nillable: `true` |

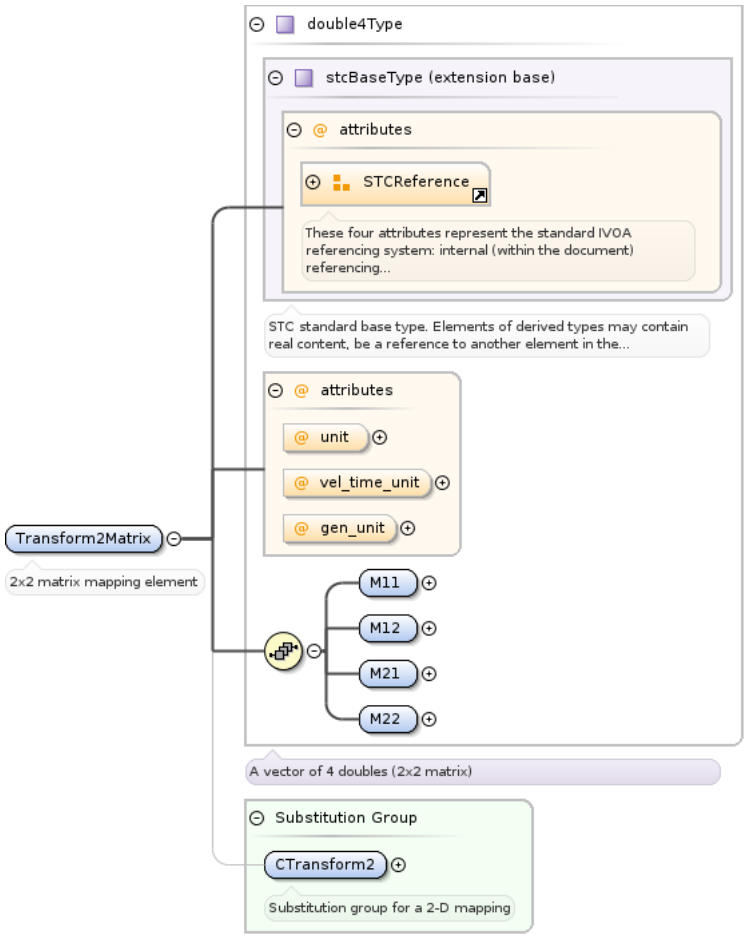
Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **reference** | posAngleReference-Type | | X | optional |
| **ucd** | xs:string | | | optional |
| **unit** | angleUnitType | | deg | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

| | |
|---|---|
| Source | `<xs:element name="PosAngle" type="posAngleType" nillable="true" minOccurs="0"/>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `Transform2Matrix`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `2x2 matrix mapping element` |

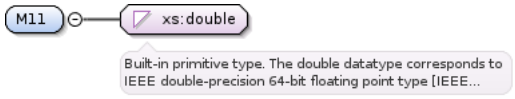
| | |
|---|---|
| Diagram |  |
| Type | double4Type |
| Type hierarchy | • stcBaseType<br>  • double4Type |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • CTransform2 |
| Model | M11 , M12 , M21 , M22 |
| Children | M11, M12, M21, M22 |
| Instance | `<Transform2Matrix gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <M11>{1,1}</M11>`<br>`  <M12>{1,1}</M12>`<br>`  <M21>{1,1}</M21>`<br>`  <M22>{1,1}</M22>`<br>`</Transform2Matrix>` |

Attributes

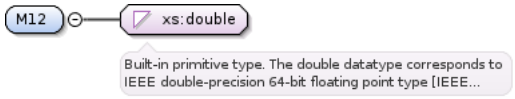
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |

| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |
| Source | <xs:element name="Transform2Matrix" type="double4Type" substitutionGroup="CTransform2" nillable="true"><br><xs:annotation><br><xs:documentation>2x2 matrix mapping element</xs:documentation><br></xs:annotation><br></xs:element> | | | | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | | | | |

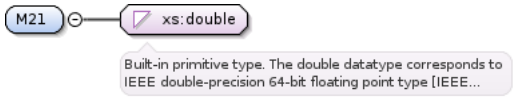
## Element double4Type / M11

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Diagram |  |
| Type | xs:double |
| Properties | content: simple<br>nillable: true |
| Source | <xs:element name="M11" type="xs:double" nillable="true"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

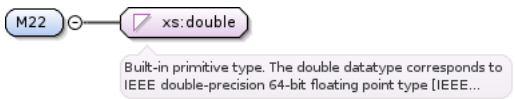
## Element double4Type / M12

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Diagram |  |
| Type | xs:double |
| Properties | content: simple<br>nillable: true |
| Source | <xs:element name="M12" type="xs:double" nillable="true"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element double4Type / M21

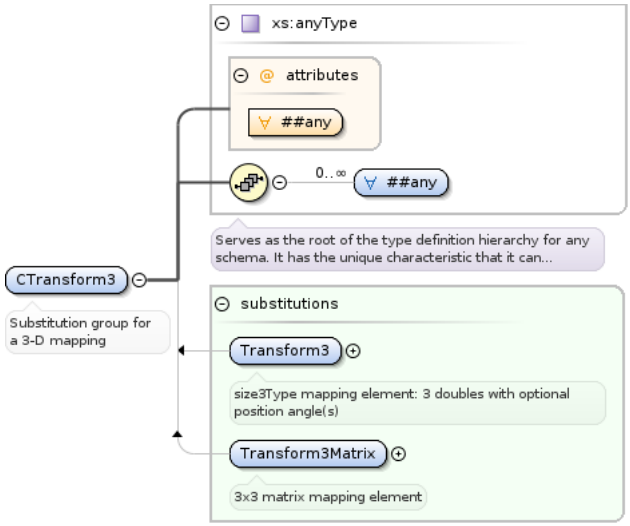
| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Diagram |  |
| Type | xs:double |
| Properties | content: simple<br>nillable: true |
| Source | <xs:element name="M21" type="xs:double" nillable="true"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element double4Type / M22

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Diagram |  |

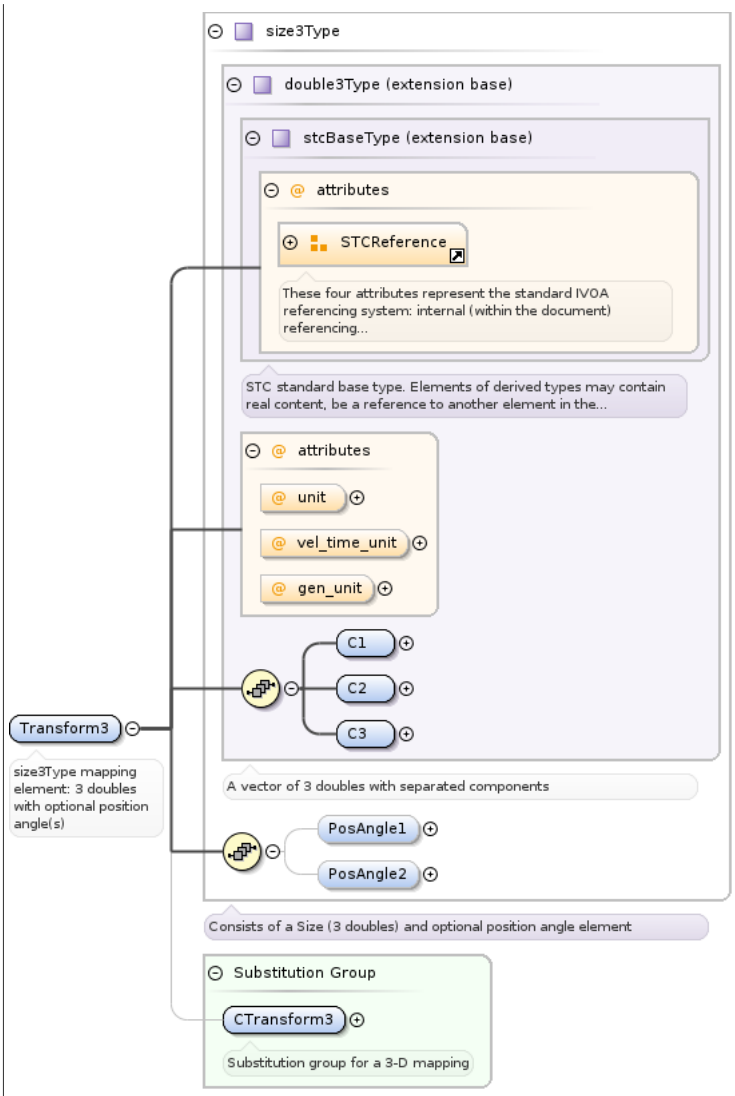
| | |
|---|---|
| Type | xs:double |
| Properties | content: simple<br>nillable: true |
| Source | `<xs:element name="M22" type="xs:double" nillable="true"/>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element CTransform3

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Substitution group for a 3-D mapping |
| Diagram |  |
| Properties | abstract: true |
| Substitution Group | • Transform3<br>• Transform3Matrix |
| Used by | Complex Type cart3DRefFrameType |
| Source | `<xs:element name="CTransform3" type="xs:anyType" abstract="true">`<br>`  <xs:annotation>`<br>`  <xs:documentation>Substitution group for a 3-D mapping</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element Transform3

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | size3Type mapping element: 3 doubles with optional position angle(s) |

| | |
|---|---|
| Diagram |  |
| Type | size3Type |
| Type hierarchy | • stcBaseType<br>  • double3Type<br>  • size3Type |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • CTransform3 |
| Model | C1 , C2 , C3 , PosAngle1{0,1} , PosAngle2{0,1} |
| Children | C1, C2, C3, PosAngle1, PosAngle2 |
| Instance | <Transform3 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" www.ivoa.net/xml/STC/stc-v1.30.xsd"><br><C1 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp C1><br><C2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp C2><br><C3 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp C3><br><PosAngle1 xlink:href="" id="" ID_type="" idref="" IDREF_type="" reference="X" xlink:type="simple" ucd PosAngle1><br><PosAngle2 xlink:href="" id="" ID_type="" idref="" IDREF_type="" reference="X" xlink:type="simple" ucd PosAngle2><br></Transform3> |

| | | | | | |
|---|---|---|---|---|---|
| Attributes | **QName** | **Type** | **Fixed** | **Default** | **Use** |
| | **IDREF_type** | xs:string | | | optional |
| | **ID_type** | xs:string | | | optional |
| | **gen_unit** | unitType | | | optional |
| | **id** | xs:ID | | | optional |
| | **idref** | xs:IDREF | | | optional |
| | **ucd** | xs:string | | | optional |
| | **unit** | posUnitType | | | optional |
| | **vel_time_unit** | velTimeUnitType | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

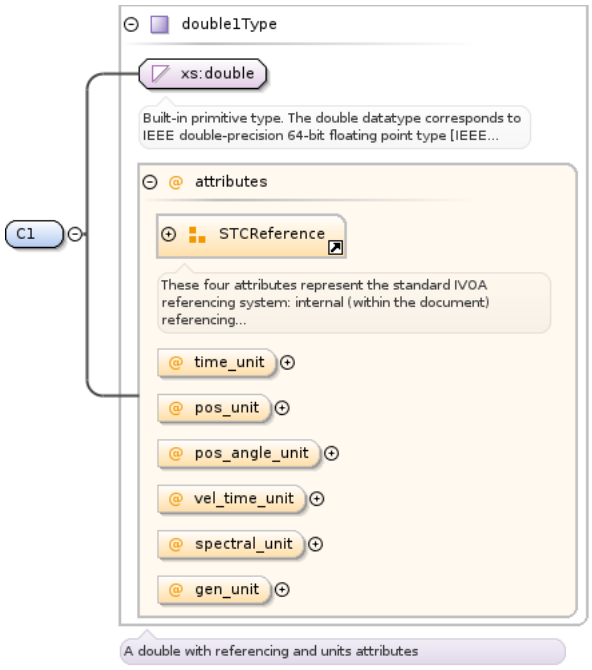
```
<xs:element name="Transform3" type="size3Type" substitutionGroup="CTransform3"
 nillable="true">
  <xs:annotation>
    <xs:documentation>size3Type mapping element: 3 doubles with optional position
 angle(s)</xs:documentation>
  </xs:annotation>
</xs:element>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Element double3Type / C1

Namespace: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

Diagram




Type: double1Type

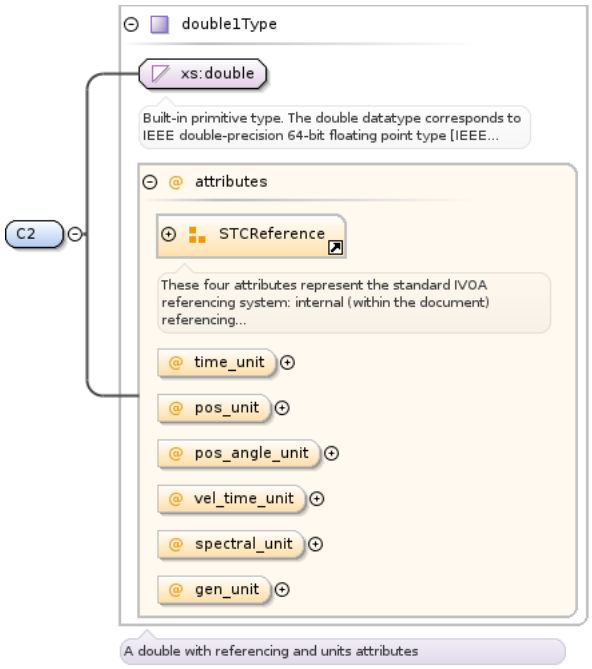
Properties

| | |
|---|---|
| content: | complex |
| nillable: | true |

| Attributes | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **IDREF_type** | xs:string | | | optional |
| | **ID_type** | xs:string | | | optional |
| | **gen_unit** | unitType | | | optional |
| | **id** | xs:ID | | | optional |
| | **idref** | xs:IDREF | | | optional |
| | **pos_angle_unit** | angleUnitType | | | optional |

| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **pos_unit** | posUnitType | | | optional |
| | **spectral_unit** | spectralUnitType | | | optional |
| | **time_unit** | timeUnitType | | | optional |
| | **ucd** | xs:string | | | optional |
| | **vel_time_unit** | velTimeUnitType | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |
| Source | `<xs:element name="C1" type="double1Type" nillable="true"/>` | | | | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | | | | |

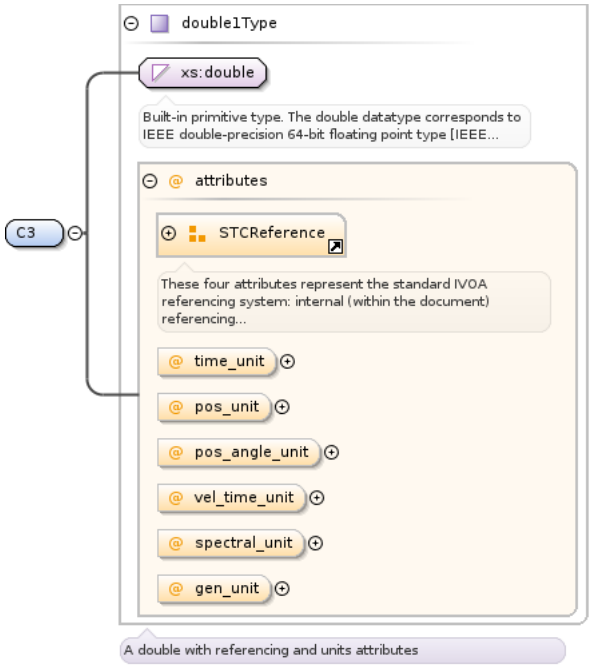
## Element `double3Type / C2`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Diagram |   |
| Type | double1Type |
| Properties | content: `complex`<br>nillable: `true` |

| Attributes | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **IDREF_type** | xs:string | | | optional |
| | **ID_type** | xs:string | | | optional |
| | **gen_unit** | unitType | | | optional |
| | **id** | xs:ID | | | optional |
| | **idref** | xs:IDREF | | | optional |
| | **pos_angle_unit** | angleUnitType | | | optional |
| | **pos_unit** | posUnitType | | | optional |
| | **spectral_unit** | spectralUnitType | | | optional |
| | **time_unit** | timeUnitType | | | optional |
| | **ucd** | xs:string | | | optional |
| | **vel_time_unit** | velTimeUnitType | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |

| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |
| Source | <xs:element name="C2" type="double1Type" nillable="true"/> | | | | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | | | | |

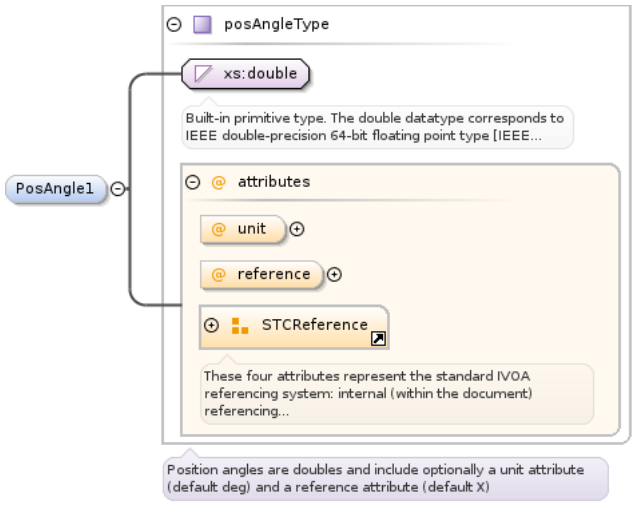
## Element double3Type / C3

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Diagram |   |
| Type | double1Type |
| Properties | content: complex<br>nillable: true |

| Attributes | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **IDREF_type** | xs:string | | | optional |
| | **ID_type** | xs:string | | | optional |
| | **gen_unit** | unitType | | | optional |
| | **id** | xs:ID | | | optional |
| | **idref** | xs:IDREF | | | optional |
| | **pos_angle_unit** | angleUnitType | | | optional |
| | **pos_unit** | posUnitType | | | optional |
| | **spectral_unit** | spectralUnitType | | | optional |
| | **time_unit** | timeUnitType | | | optional |
| | **ucd** | xs:string | | | optional |
| | **vel_time_unit** | velTimeUnitType | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |
| Source | <xs:element name="C3" type="double1Type" nillable="true"/> | | | | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | | | | |

## Element size3Type / PosAngle1

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

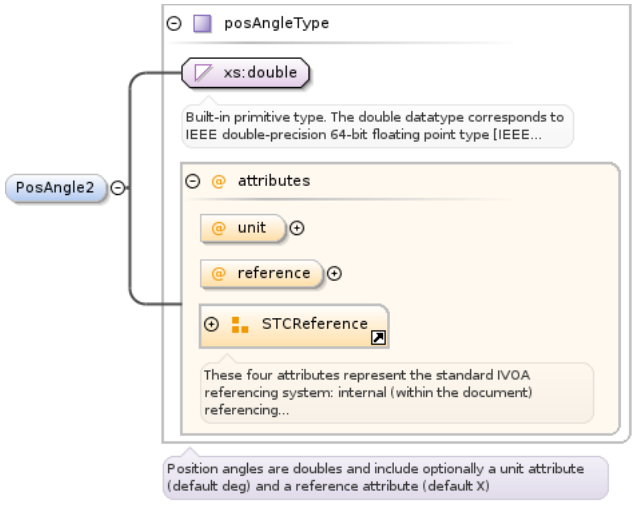
| | |
|---|---|
| Diagram |  |
| Type | posAngleType |
| Properties | content: `complex`<br>minOccurs: `0`<br>nillable: `true` |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **reference** | posAngleReference-Type | | X | optional |
| **ucd** | xs:string | | | optional |
| **unit** | angleUnitType | | deg | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

| | |
|---|---|
| Source | `<xs:element name="PosAngle1" type="posAngleType" nillable="true" minOccurs="0"/>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

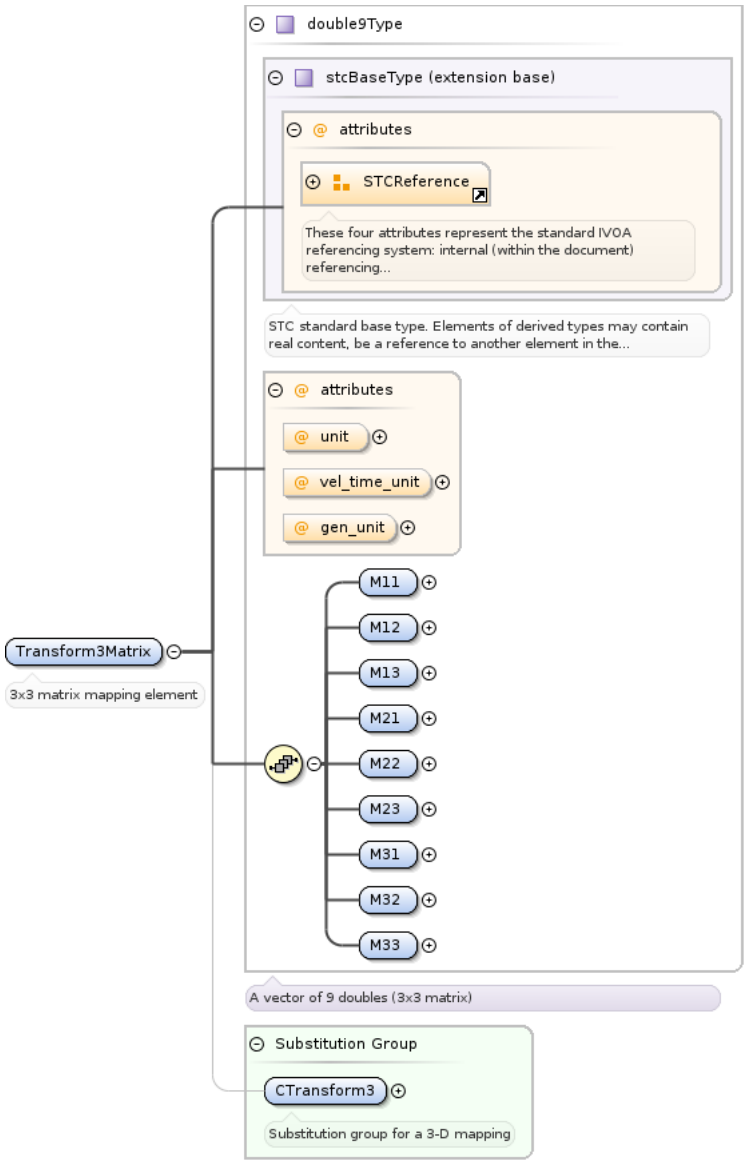
## Element `size3Type / PosAngle2`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Diagram |  |
| Type | posAngleType |

| | | | | | |
|---|---|---|---|---|---|
| Properties | content: | complex | | | |
| | minOccurs: | 0 | | | |
| | nillable: | true | | | |
| Attributes | **QName** | **Type** | **Fixed** | **Default** | **Use** |
| | **IDREF_type** | xs:string | | | optional |
| | **ID_type** | xs:string | | | optional |
| | **id** | xs:ID | | | optional |
| | **idref** | xs:IDREF | | | optional |
| | **reference** | posAngleReference-Type | | X | optional |
| | **ucd** | xs:string | | | optional |
| | **unit** | angleUnitType | | deg | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |
| Source | `<xs:element name="PosAngle2" type="posAngleType" nillable="true" minOccurs="0"/>` | | | | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | | | | |

## Element `Transform3Matrix`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | 3x3 matrix mapping element |

| | |
|---|---|
| Diagram |  |
| Type | double9Type |
| Type hierarchy | • stcBaseType<br>  • double9Type |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • CTransform3 |
| Model | M11 , M12 , M13 , M21 , M22 , M23 , M31 , M32 , M33 |
| Children | M11, M12, M13, M21, M22, M23, M31, M32, M33 |
| Instance | <Transform3Matrix gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <M11>{1,1}</M11><br>  <M12>{1,1}</M12><br>  <M13>{1,1}</M13><br>  <M21>{1,1}</M21><br>  <M22>{1,1}</M22><br>  <M23>{1,1}</M23><br>  <M31>{1,1}</M31><br>  <M32>{1,1}</M32><br>  <M33>{1,1}</M33><br></Transform3Matrix> |

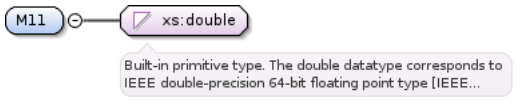
| Attributes | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **IDREF_type** | xs:string | | | optional |
| | **ID_type** | xs:string | | | optional |
| | **gen_unit** | unitType | | | optional |
| | **id** | xs:ID | | | optional |
| | **idref** | xs:IDREF | | | optional |
| | **ucd** | xs:string | | | optional |
| | **unit** | posUnitType | | | optional |
| | **vel_time_unit** | velTimeUnitType | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

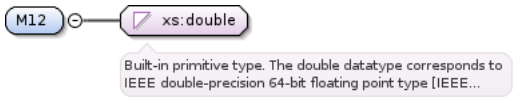
```
<xs:element name="Transform3Matrix" type="double9Type" substitutionGroup="CTransform3"
 nillable="true">
  <xs:annotation>
    <xs:documentation>3x3 matrix mapping element</xs:documentation>
  </xs:annotation>
</xs:element>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

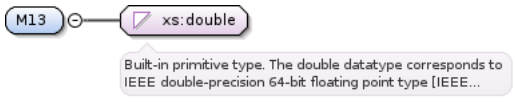
## Element double9Type / M11

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Diagram |   |
| Type | xs:double |
| Properties | content: simple<br>nillable: true |
| Source | `<xs:element name="M11" type="xs:double" nillable="true"/>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element double9Type / M12

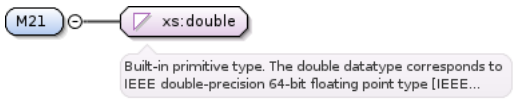
| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Diagram |   |
| Type | xs:double |
| Properties | content: simple<br>nillable: true |
| Source | `<xs:element name="M12" type="xs:double" nillable="true"/>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element double9Type / M13

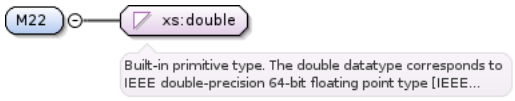
| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Diagram |   |
| Type | xs:double |
| Properties | content: simple |

| | |
|---|---|
| | nillable: true |
| Source | <xs:element name="M13" type="xs:double" nillable="true"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

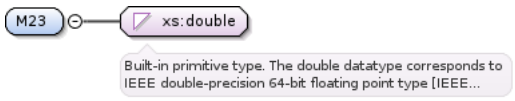
## Element doubleGType / M21

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Diagram |  |
| Type | xs:double |
| Properties | content: simple<br>nillable: true |
| Source | <xs:element name="M21" type="xs:double" nillable="true"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

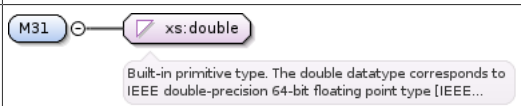
## Element doubleGType / M22

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Diagram |  |
| Type | xs:double |
| Properties | content: simple<br>nillable: true |
| Source | <xs:element name="M22" type="xs:double" nillable="true"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element doubleGType / M23

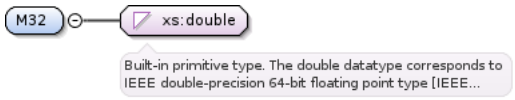
| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Diagram |  |
| Type | xs:double |
| Properties | content: simple<br>nillable: true |
| Source | <xs:element name="M23" type="xs:double" nillable="true"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element doubleGType / M31

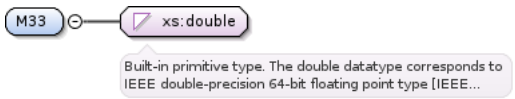
| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Diagram |  |
| Type | xs:double |
| Properties | content: simple<br>nillable: true |

| | |
|---|---|
| Source | <xs:element name="M31" type="xs:double" nillable="true"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

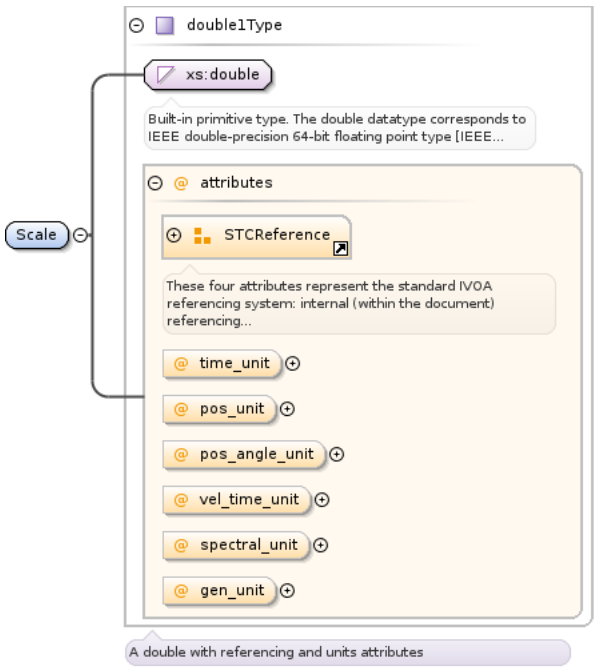
## Element double9Type / M32

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Diagram |  |
| Type | xs:double |
| Properties | content: simple<br>nillable: true |
| Source | <xs:element name="M32" type="xs:double" nillable="true"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element double9Type / M33

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Diagram |  |
| Type | xs:double |
| Properties | content: simple<br>nillable: true |
| Source | <xs:element name="M33" type="xs:double" nillable="true"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element cart1DRefFrameType / Scale

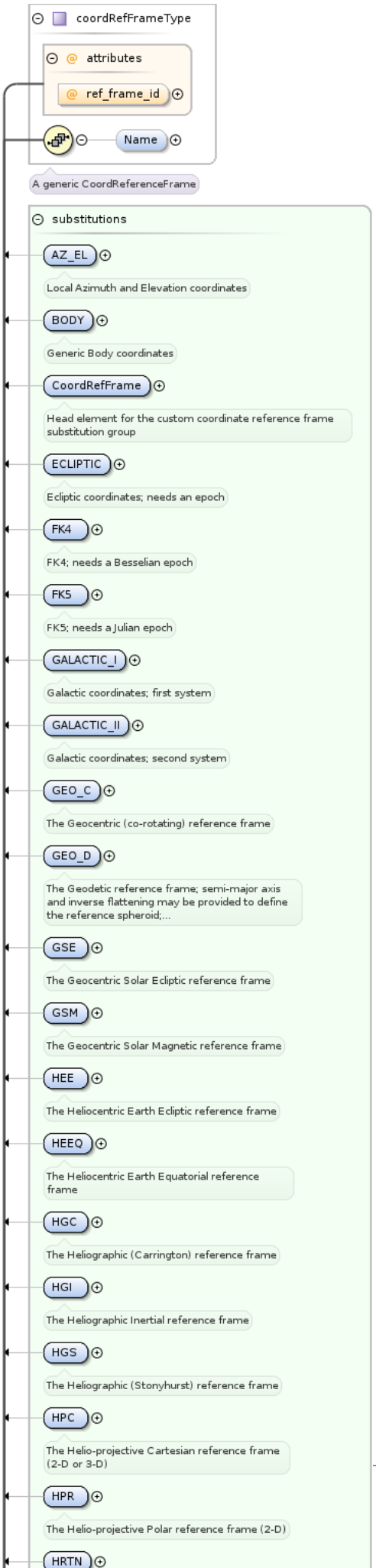
| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Diagram |  |
| Type | double1Type |
| Properties | content: complex |

| | | | | | |
|---|---|---|---|---|---|
| | nillable: | `true` | | | |
| Attributes | **QName** | **Type** | **Fixed** | **Default** | **Use** |
| | **IDREF_type** | xs:string | | | optional |
| | **ID_type** | xs:string | | | optional |
| | **gen_unit** | unitType | | | optional |
| | **id** | xs:ID | | | optional |
| | **idref** | xs:IDREF | | | optional |
| | **pos_angle_unit** | angleUnitType | | | optional |
| | **pos_unit** | posUnitType | | | optional |
| | **spectral_unit** | spectralUnitType | | | optional |
| | **time_unit** | timeUnitType | | | optional |
| | **ucd** | xs:string | | | optional |
| | **vel_time_unit** | velTimeUnitType | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |
| Source | <xs:element name="Scale" type="double1Type" nillable="true"/> | | | | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | | | | |

## Element SpaceRefFrame

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Head element for the Coordinate reference frame substitution group: optional equinox with either a standard reference system (ICRS, FK5, FK4) and optional standard pole (equatorial, ecliptic, galactic, etc.), or a custom frame with pole (positive Z-axis) and positive X-axis direction |

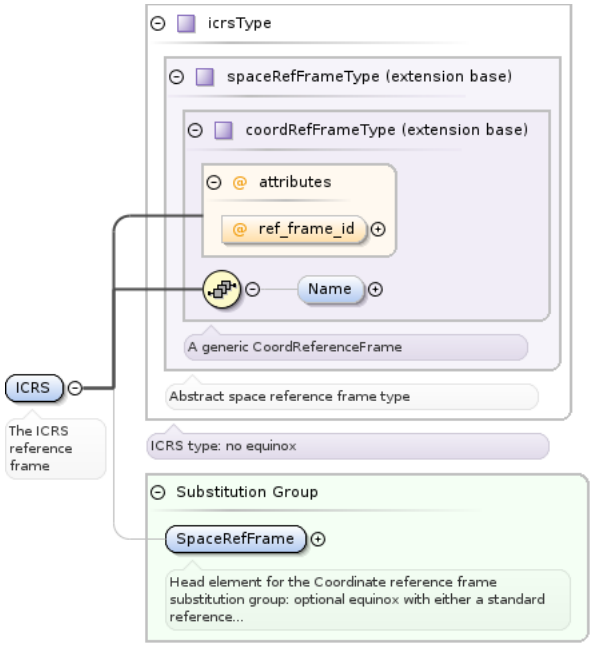
Diagram


coordRefFrameType
attributes
ref_frame_id
Name
A generic CoordReferenceFrame
substitutions
AZ_EL
Local Azimuth and Elevation coordinates
BODY
Generic Body coordinates
CoordRefFrame
Head element for the custom coordinate reference frame substitution group
ECLIPTIC
Ecliptic coordinates; needs an epoch
FK4
FK4; needs a Besselian epoch
FK5
FK5; needs a Julian epoch
GALACTIC_I
Galactic coordinates; first system
GALACTIC_II
Galactic coordinates; second system
GEO_C
The Geocentric (co-rotating) reference frame
GEO_D
The Geodetic reference frame; semi-major axis and inverse flattening may be provided to define the reference spheroid;...
GSE
The Geocentric Solar Ecliptic reference frame
GSM
The Geocentric Solar Magnetic reference frame
HEE
The Heliocentric Earth Ecliptic reference frame
HEEQ
The Heliocentric Earth Equatorial reference frame
HGC
The Heliographic (Carrington) reference frame
HGI
The Heliographic Inertial reference frame
HGS
The Heliographic (Stonyhurst) reference frame
HPC
The Helio-projective Cartesian reference frame (2-D or 3-D)
HPR
The Helio-projective Polar reference frame (2-D)
HRTN

| | |
|---|---|
| Type | coordRefFrameType |
| Properties | content: complex<br>abstract: true |
| Substitution Group | • ICRS<br>• FK4<br>• FK5<br>• ECLIPTIC<br>• GALACTIC_I<br>• GALACTIC_II<br>• SUPER_GALACTIC<br>• AZ_EL<br>• BODY<br>• GEO_C<br>• GEO_D<br>• MAG<br>• GSE<br>• GSM<br>• SM<br>• HGC<br>• HGS<br>• HPC<br>• HPR<br>• HEE<br>• HEEQ<br>• HGI<br>• HRTN<br>• MERCURY_C<br>• VENUS_C<br>• LUNA_C<br>• MARS_C<br>• JUPITER_C_III<br>• SATURN_C_III<br>• URANUS_C_III<br>• NEPTUNE_C_III<br>• PLUTO_C<br>• MERCURY_G<br>• VENUS_G<br>• LUNA_G<br>• MARS_G<br>• JUPITER_G_III |

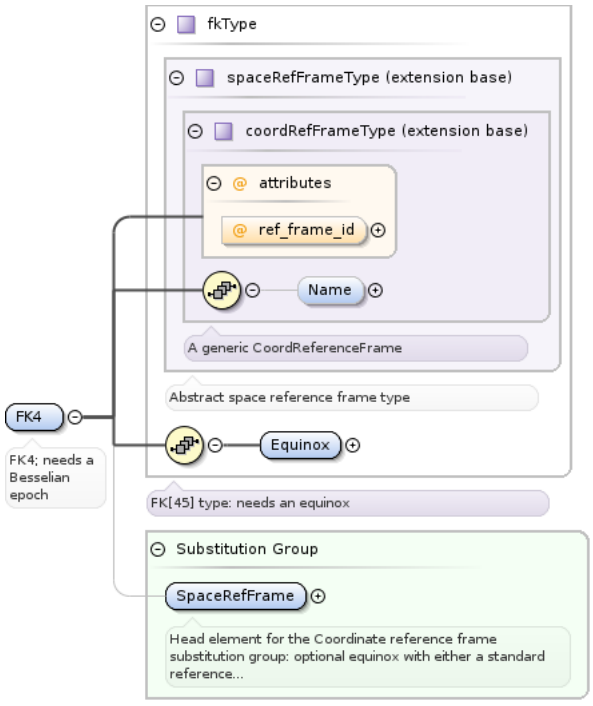
| | |
|---|---|
| | • SATURN_G_III<br>• URANUS_G_III<br>• NEPTUNE_G_III<br>• PLUTO_G<br>• UNKNOWNFrame<br>• CoordRefFrame<br>• SphericalRefFrame<br>• ScalarRefFrame<br>• Cart2DRefFrame<br>• Cart3DRefFrame |
| Used by | Complex Type spaceFrameType |
| Model | Name{0,1} |
| Children | Name |
| `Instance` | `<SpaceRefFrame ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Name>{0,1}</Name>`<br>`</SpaceRefFrame>` |
| Attributes | **QName** \| **Type** \| **Fixed** \| **Default** \| **Use**<br>**ref_frame_id** \| xs:IDREF \| \| \| optional |
| `Source` | `<xs:element name="SpaceRefFrame" type="coordRefFrameType" abstract="true">`<br>`  <xs:annotation>`<br>`  <xs:documentation>Head element for the Coordinate reference frame substitution group: optional equinox with either a standard reference system (ICRS, FK5, FK4) and optional standard pole (equatorial, ecliptic, galactic, etc.), or a custom frame with pole (positive Z-axis) and positive X-axis direction</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `ICRS`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `The ICRS reference frame` |
| Diagram |  |
| Type | icrsType |
| Type hierarchy | • coordRefFrameType |

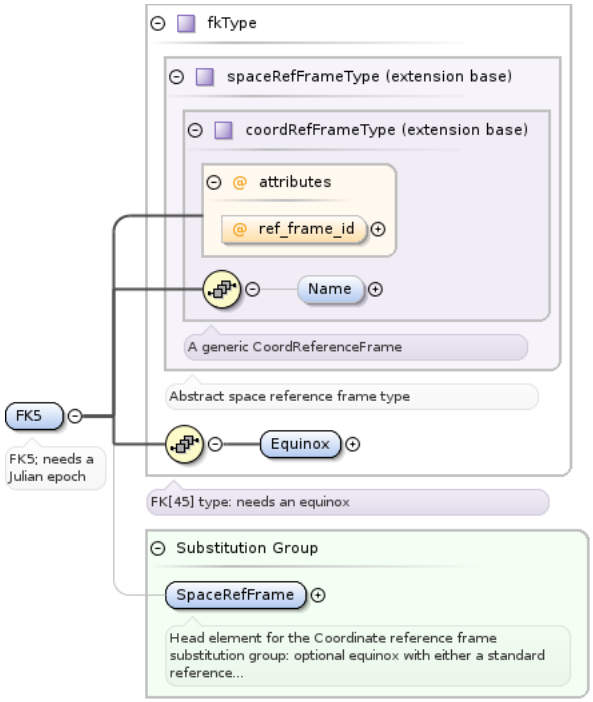
| | |
|---|---|
| | • spaceRefFrameType<br>• icrsType |
| Properties | content: complex |
| Substitution Group Affiliation | • SpaceRefFrame |
| Model | Name{0,1} |
| Children | Name |
| Instance | <ICRS ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd"><br><Name>{0,1}</Name><br></ICRS> |
| Attributes | QName: ref_frame_id; Type: xs:IDREF; Fixed: ; Default: ; Use: optional |
| Source | <xs:element name="ICRS" type="icrsType" substitutionGroup="SpaceRefFrame"><br><xs:annotation><br><xs:documentation>The ICRS reference frame</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element FK4

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | FK4; needs a Besselian epoch |
| Diagram |  |
| Type | fkType |
| Type hierarchy | • coordRefFrameType<br>• spaceRefFrameType<br>• fkType |
| Properties | content: complex |
| Substitution Group Affiliation | • SpaceRefFrame |
| Model | Name{0,1} , Equinox |
| Children | Equinox, Name |
| Instance | <FK4 ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd"> |

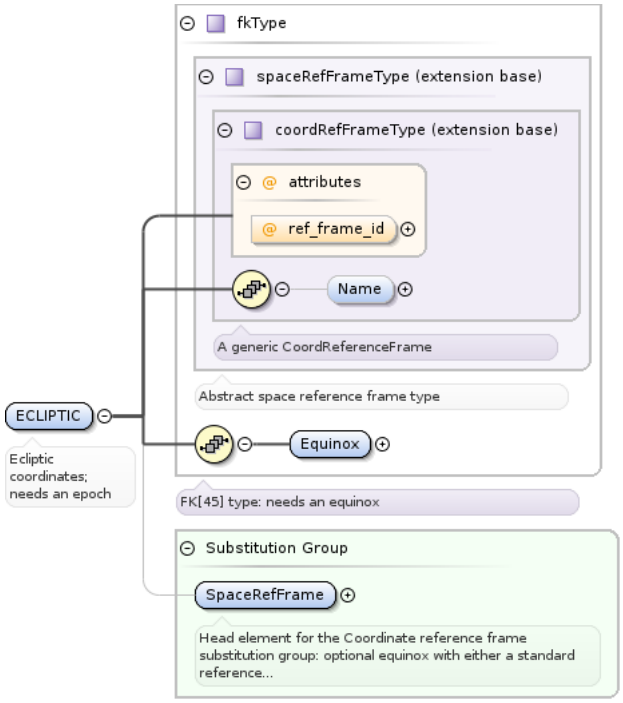
<table>
<tr><td></td><td><pre>  <Name>{0,1}</Name>
  <Equinox>{1,1}</Equinox>
</FK4></pre></td></tr>
<tr><td>Attributes</td><td>
<table>
<tr><th>QName</th><th>Type</th><th>Fixed</th><th>Default</th><th>Use</th></tr>
<tr><td>ref_frame_id</td><td>xs:IDREF</td><td></td><td></td><td>optional</td></tr>
</table>
</td></tr>
<tr><td>Source</td><td><pre><xs:element name="FK4" type="fkType" substitutionGroup="SpaceRefFrame">
  <xs:annotation>
    <xs:documentation>FK4; needs a Besselian epoch</xs:documentation>
  </xs:annotation>
</xs:element></pre></td></tr>
<tr><td>Schema location</td><td>http://www.ivoa.net/xml/STC/stc-v1.30.xsd</td></tr>
</table>

## Element FK5

<table>
<tr><td>Namespace</td><td>http://www.ivoa.net/xml/STC/stc-v1.30.xsd</td></tr>
<tr><td>Annotations</td><td>FK5; needs a Julian epoch</td></tr>
<tr><td>Diagram</td><td> 
</td></tr>
<tr><td>Type</td><td>fkType</td></tr>
<tr><td>Type hierarchy</td><td>• coordRefFrameType<br>• spaceRefFrameType<br>• fkType</td></tr>
<tr><td>Properties</td><td>content: complex</td></tr>
<tr><td>Substitution Group Affiliation</td><td>• SpaceRefFrame</td></tr>
<tr><td>Model</td><td>Name{0,1} , Equinox</td></tr>
<tr><td>Children</td><td>Equinox, Name</td></tr>
<tr><td>Instance</td><td><pre><FK5 ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">
  <Name>{0,1}</Name>
  <Equinox>{1,1}</Equinox>
</FK5></pre></td></tr>
<tr><td>Attributes</td><td>
<table>
<tr><th>QName</th><th>Type</th><th>Fixed</th><th>Default</th><th>Use</th></tr>
<tr><td>ref_frame_id</td><td>xs:IDREF</td><td></td><td></td><td>optional</td></tr>
</table>
</td></tr>
<tr><td>Source</td><td><pre><xs:element name="FK5" type="fkType" substitutionGroup="SpaceRefFrame">
  <xs:annotation>
    <xs:documentation>FK5; needs a Julian epoch</xs:documentation>
  </xs:annotation>
</xs:element></pre></td></tr>
</table>

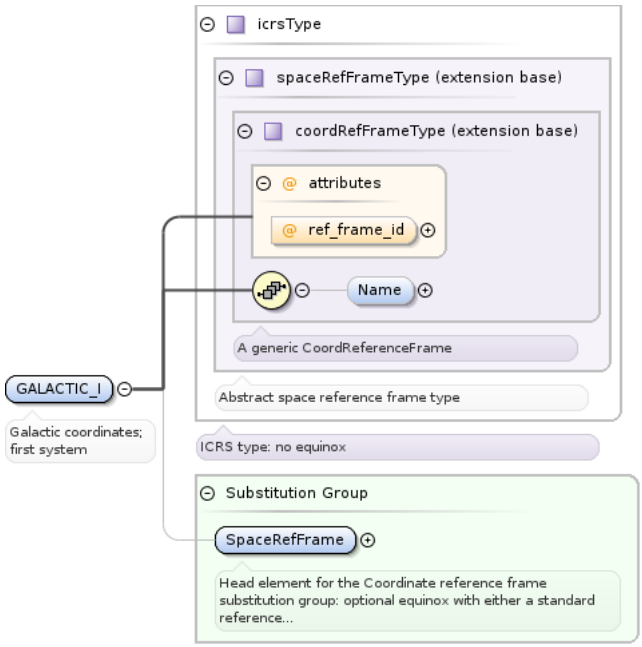
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
|---|---|

## Element ECLIPTIC

| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
|---|---|
| Annotations | Ecliptic coordinates; needs an epoch |
| Diagram |  |
| Type | fkType |
| Type hierarchy | • coordRefFrameType<br>  • spaceRefFrameType<br>  • fkType |
| Properties | content: complex |
| Substitution Group Affiliation | • SpaceRefFrame |
| Model | Name{0,1} , Equinox |
| Children | Equinox, Name |
| Instance | <ECLIPTIC ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <Name>{0,1}</Name><br>  <Equinox>{1,1}</Equinox><br></ECLIPTIC> |
| Attributes | **QName** / **Type** / **Fixed** / **Default** / **Use**<br>**ref_frame_id** / xs:IDREF / / / optional |
| Source | <xs:element name="ECLIPTIC" type="fkType" substitutionGroup="SpaceRefFrame"><br>  <xs:annotation><br>  <xs:documentation>Ecliptic coordinates; needs an epoch</xs:documentation><br>  </xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

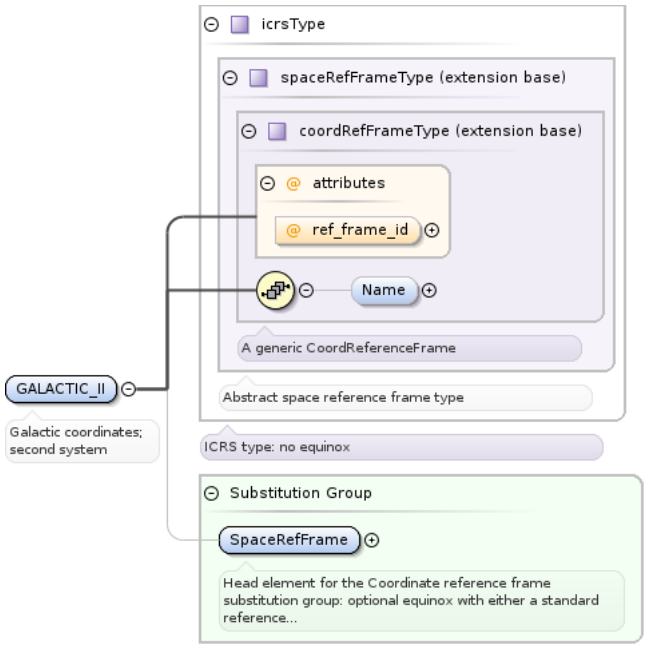
## Element GALACTIC_I

| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
|---|---|
| Annotations | Galactic coordinates; first system |

| | |
|---|---|
| Diagram |  |
| Type | icrsType |
| Type hierarchy | • coordRefFrameType<br>• spaceRefFrameType<br>• icrsType |
| Properties | content: complex |
| Substitution Group Affiliation | • SpaceRefFrame |
| Model | Name{0,1} |
| Children | Name |
| Instance | `<GALACTIC_I ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Name>{0,1}</Name>`<br>`</GALACTIC_I>` |
| Attributes | **QName** \| **Type** \| **Fixed** \| **Default** \| **Use**<br>**ref_frame_id** \| xs:IDREF \| \| \| optional |
| Source | `<xs:element name="GALACTIC_I" type="icrsType" substitutionGroup="SpaceRefFrame">`<br>`  <xs:annotation>`<br>`  <xs:documentation>Galactic coordinates; first system</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

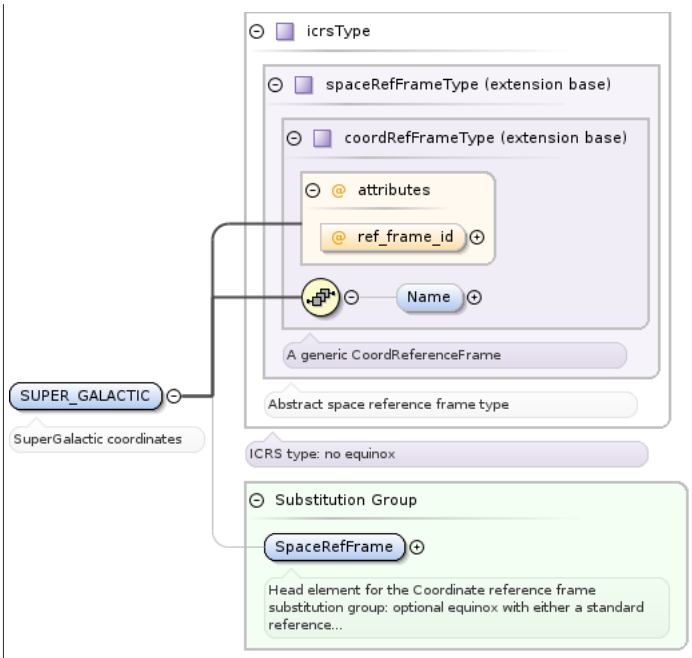
## Element GALACTIC_II

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Galactic coordinates; second system |

| | |
|---|---|
| Diagram |  |
| Type | icrsType |
| Type hierarchy | • coordRefFrameType<br>• spaceRefFrameType<br>• icrsType |
| Properties | content: complex |
| Substitution Group Affiliation | • SpaceRefFrame |
| Model | Name{0,1} |
| Children | Name |
| Instance | `<GALACTIC_II ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Name>{0,1}</Name>`<br>`</GALACTIC_II>` |
| Attributes | **QName** \| **Type** \| **Fixed** \| **Default** \| **Use**<br>**ref_frame_id** \| xs:IDREF \| \| \| optional |
| Source | `<xs:element name="GALACTIC_II" type="icrsType" substitutionGroup="SpaceRefFrame">`<br>`  <xs:annotation>`<br>`  <xs:documentation>Galactic coordinates; second system</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

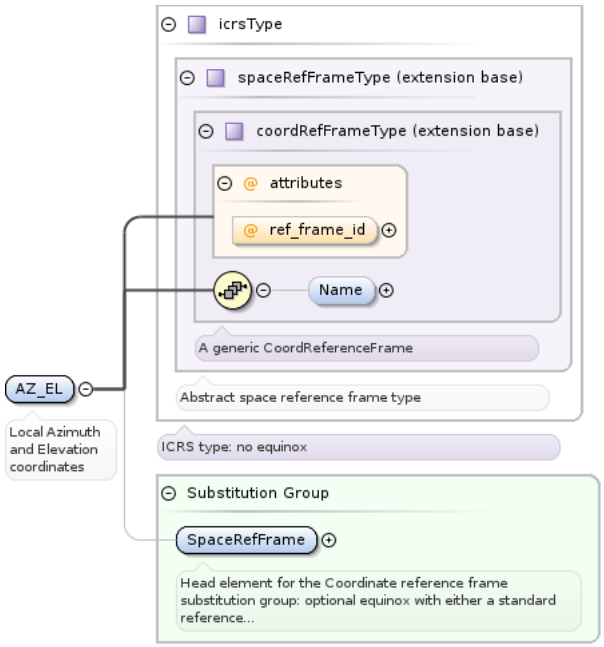
## Element SUPER_GALACTIC

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | SuperGalactic coordinates |

| | |
|---|---|
| Diagram |  |
| Type | icrsType |
| Type hierarchy | • coordRefFrameType<br>• spaceRefFrameType<br>• icrsType |
| Properties | content: complex |
| Substitution Group Affiliation | • SpaceRefFrame |
| Model | Name{0,1} |
| Children | Name |
| Instance | `<SUPER_GALACTIC ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Name>{0,1}</Name>`<br>`</SUPER_GALACTIC>` |
| Attributes | **QName** \| **Type** \| **Fixed** \| **Default** \| **Use**<br>**ref_frame_id** \| xs:IDREF \| \| \| optional |
| Source | `<xs:element name="SUPER_GALACTIC" type="icrsType" substitutionGroup="SpaceRefFrame">`<br>`  <xs:annotation>`<br>`  <xs:documentation>SuperGalactic coordinates</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

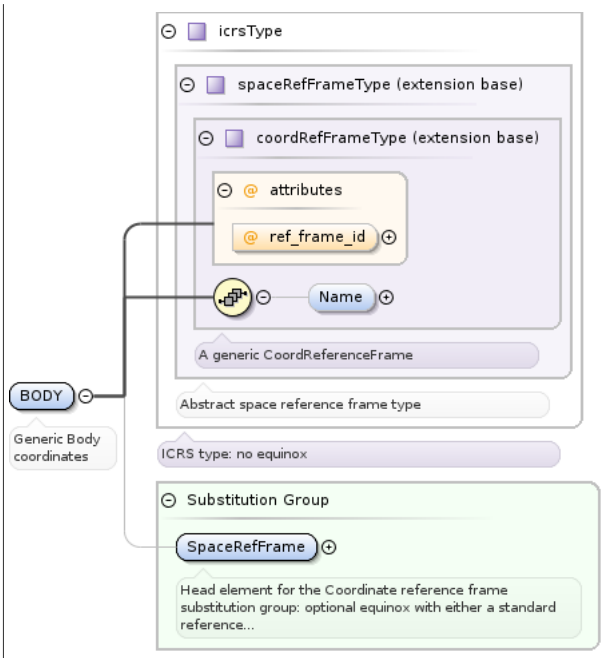
## Element AZ_EL

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Local Azimuth and Elevation coordinates |

| | |
|---|---|
| Diagram |  |
| Type | icrsType |
| Type hierarchy | • coordRefFrameType<br>  • spaceRefFrameType<br>  • icrsType |
| Properties | content: complex |
| Substitution Group Affiliation | • SpaceRefFrame |
| Model | Name{0,1} |
| Children | Name |
| Instance | `<AZ_EL ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Name>{0,1}</Name>`<br>`</AZ_EL>` |
| Attributes | **QName** \| **Type** \| **Fixed** \| **Default** \| **Use**<br>**ref_frame_id** \| xs:IDREF \| \| \| optional |
| Source | `<xs:element name="AZ_EL" type="icrsType" substitutionGroup="SpaceRefFrame">`<br>`  <xs:annotation>`<br>`  <xs:documentation>Local Azimuth and Elevation coordinates</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

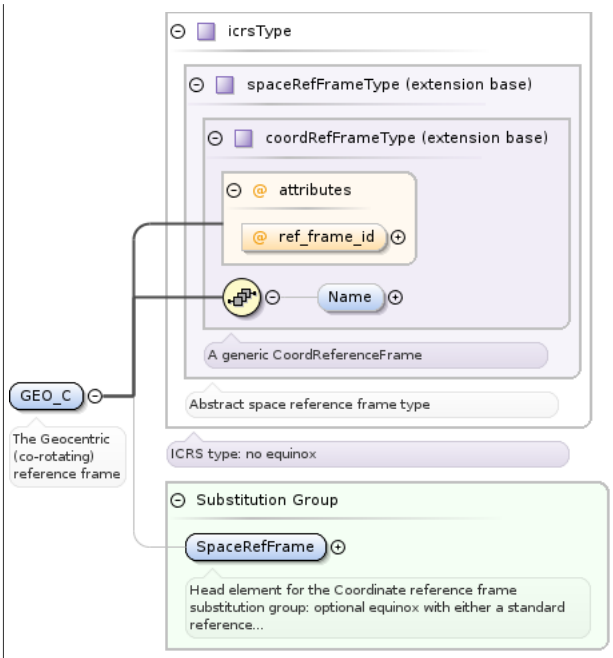
## Element BODY

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Generic Body coordinates |

| | |
|---|---|
| Diagram |  |
| Type | icrsType |
| Type hierarchy | • coordRefFrameType<br>• spaceRefFrameType<br>• icrsType |
| Properties | content: complex |
| Substitution Group Affiliation | • SpaceRefFrame |
| Model | Name{0,1} |
| Children | Name |
| Instance | `<BODY ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Name>{0,1}</Name>`<br>`</BODY>` |
| Attributes | **QName** \| **Type** \| **Fixed** \| **Default** \| **Use**<br>**ref_frame_id** \| xs:IDREF \| \| \| optional |
| Source | `<xs:element name="BODY" type="icrsType" substitutionGroup="SpaceRefFrame">`<br>`  <xs:annotation>`<br>`  <xs:documentation>Generic Body coordinates</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

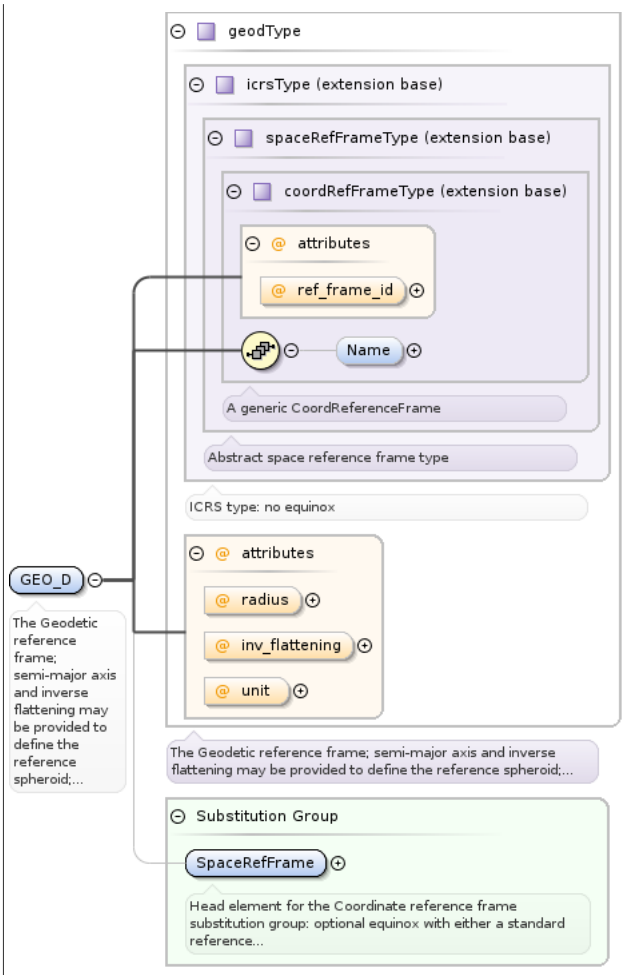
## Element GEO_C

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The Geocentric (co-rotating) reference frame |

| | |
|---|---|
| Diagram |  |
| Type | icrsType |
| Type hierarchy | • coordRefFrameType<br>• spaceRefFrameType<br>• icrsType |
| Properties | content: complex |
| Substitution Group Affiliation | • SpaceRefFrame |
| Model | Name{0,1} |
| Children | Name |
| Instance | `<GEO_C ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Name>{0,1}</Name>`<br>`</GEO_C>` |
| Attributes | **QName** \| **Type** \| **Fixed** \| **Default** \| **Use**<br>**ref_frame_id** \| xs:IDREF \| \| \| optional |
| Source | `<xs:element name="GEO_C" type="icrsType" substitutionGroup="SpaceRefFrame">`<br>`  <xs:annotation>`<br>`  <xs:documentation>The Geocentric (co-rotating) reference frame</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element GEO_D

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The Geodetic reference frame; semi-major axis and inverse flattening may be provided to define the reference spheroid; the default is the IAU 1976 reference spheroid |

| | |
|---|---|
| Diagram |  |
| Type | geodType |
| Type hierarchy | • coordRefFrameType<br>  • spaceRefFrameType<br>  • icrsType<br>  • geodType |
| Properties | content: complex |
| Substitution Group Affiliation | • SpaceRefFrame |
| Model | Name{0,1} |
| Children | Name |
| Instance | `<GEO_D inv_flattening="298.257" radius="6378140" ref_frame_id="" unit="m" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Name>{0,1}</Name>`<br>`</GEO_D>` |

Attributes

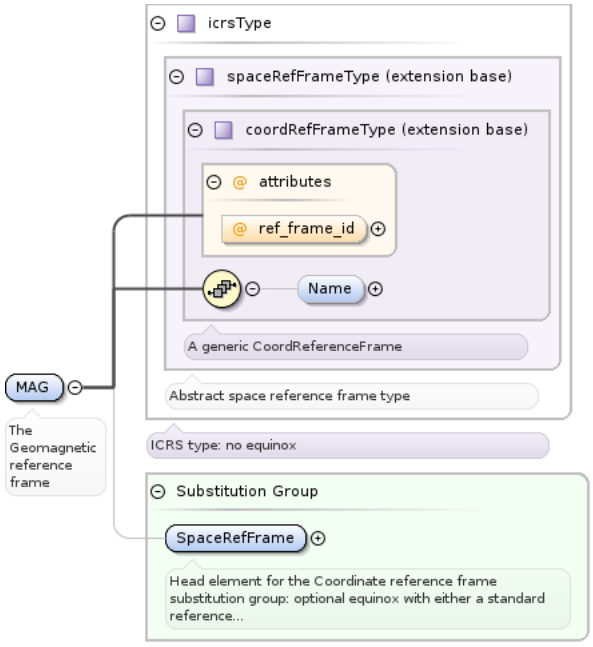
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **inv_flattening** | xs:double | | 298.257 | optional |
| **radius** | xs:double | | 6378140 | optional |
| **ref_frame_id** | xs:IDREF | | | optional |
| **unit** | posUnitType | | m | optional |

Source

```
<xs:element name="GEO_D" type="geodType" substitutionGroup="SpaceRefFrame">
  <xs:annotation>
    <xs:documentation>The Geodetic reference frame; semi-major axis and inverse flattening
 may be provided to define the reference spheroid; the default is the IAU 1976 reference
 spheroid</xs:documentation>
  </xs:annotation>
</xs:element>
```

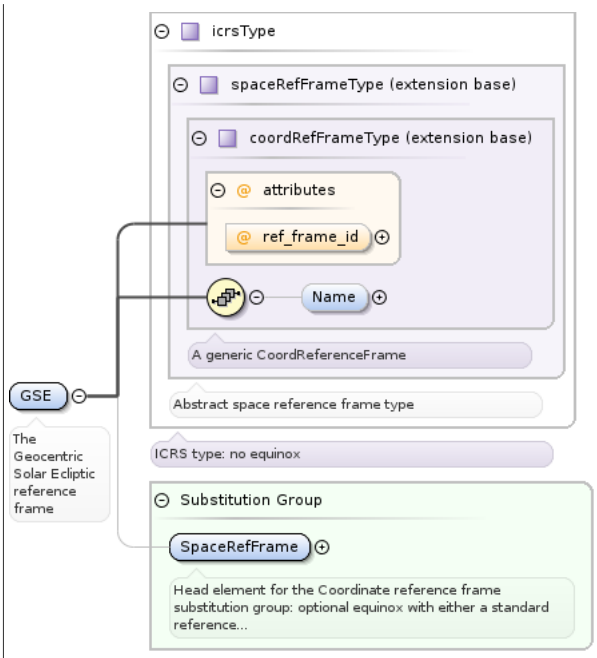
| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element MAG

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The Geomagnetic reference frame |
| Diagram |  |
| Type | icrsType |
| Type hierarchy | • coordRefFrameType<br>  • spaceRefFrameType<br>  • icrsType |
| Properties | content: complex |
| Substitution Group Affiliation | • SpaceRefFrame |
| Model | Name{0,1} |
| Children | Name |
| Instance | <MAG ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <Name>{0,1}</Name><br></MAG> |
| Attributes | **QName** \| **Type** \| **Fixed** \| **Default** \| **Use**<br>**ref_frame_id** \| xs:IDREF \| \| \| optional |
| Source | <xs:element name="MAG" type="icrsType" substitutionGroup="SpaceRefFrame"><br>  <xs:annotation><br>  <xs:documentation>The Geomagnetic reference frame</xs:documentation><br>  </xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

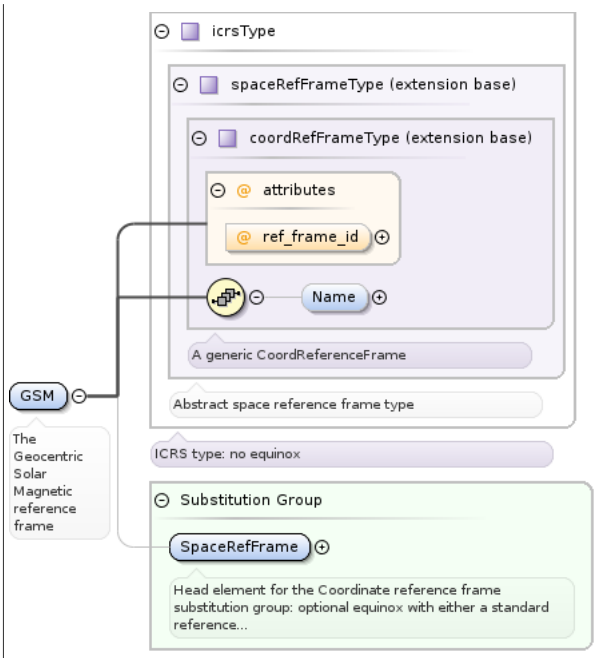
## Element GSE

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The Geocentric Solar Ecliptic reference frame |

| | |
|---|---|
| Diagram |  |
| Type | icrsType |
| Type hierarchy | • coordRefFrameType<br>• spaceRefFrameType<br>• icrsType |
| Properties | content: complex |
| Substitution Group Affiliation | • SpaceRefFrame |
| Model | Name{0,1} |
| Children | Name |
| Instance | `<GSE ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Name>{0,1}</Name>`<br>`</GSE>` |
| Attributes | **QName** \| **Type** \| **Fixed** \| **Default** \| **Use**<br>**ref_frame_id** \| xs:IDREF \| \| \| optional |
| Source | `<xs:element name="GSE" type="icrsType" substitutionGroup="SpaceRefFrame">`<br>`  <xs:annotation>`<br>`  <xs:documentation>The Geocentric Solar Ecliptic reference frame</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

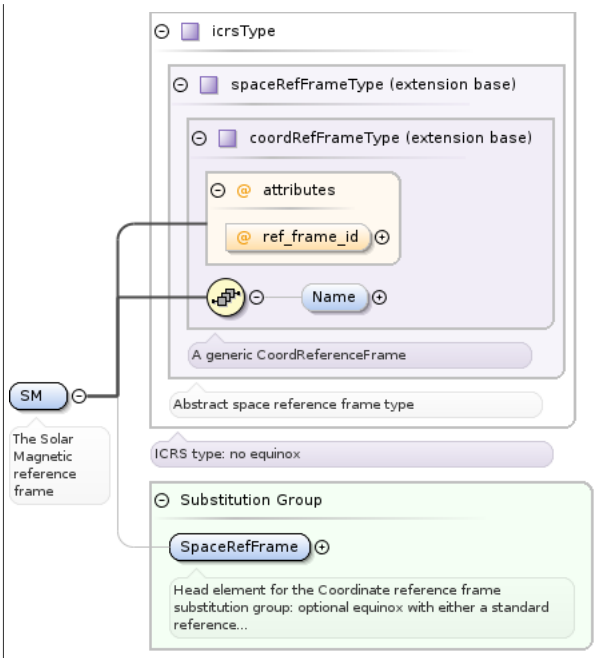
## Element GSM

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The Geocentric Solar Magnetic reference frame |

| | |
|---|---|
| Diagram |  |
| Type | icrsType |
| Type hierarchy | • coordRefFrameType<br>• spaceRefFrameType<br>• icrsType |
| Properties | content: complex |
| Substitution Group Affiliation | • SpaceRefFrame |
| Model | Name{0,1} |
| Children | Name |
| Instance | `<GSM ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Name>{0,1}</Name>`<br>`</GSM>` |
| Attributes | **QName** \| **Type** \| **Fixed** \| **Default** \| **Use**<br>**ref_frame_id** \| xs:IDREF \| \| \| optional |
| Source | `<xs:element name="GSM" type="icrsType" substitutionGroup="SpaceRefFrame">`<br>`  <xs:annotation>`<br>`  <xs:documentation>The Geocentric Solar Magnetic reference frame</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

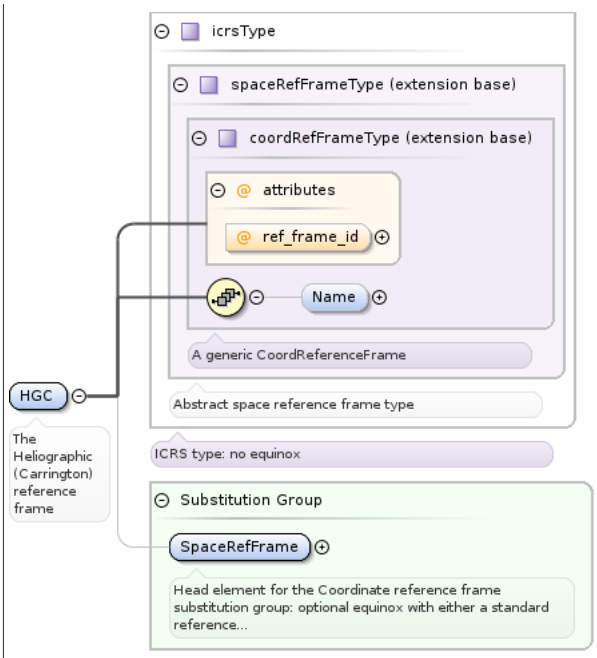
## Element SM

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The Solar Magnetic reference frame |

| | |
|---|---|
| Diagram |  |
| Type | icrsType |
| Type hierarchy | • coordRefFrameType<br>• spaceRefFrameType<br>• icrsType |
| Properties | content: complex |
| Substitution Group Affiliation | • SpaceRefFrame |
| Model | Name{0,1} |
| Children | Name |
| Instance | `<SM ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Name>{0,1}</Name>`<br>`</SM>` |
| Attributes | **QName** \| **Type** \| **Fixed** \| **Default** \| **Use**<br>**ref_frame_id** \| xs:IDREF \| \| \| optional |
| Source | `<xs:element name="SM" type="icrsType" substitutionGroup="SpaceRefFrame">`<br>`  <xs:annotation>`<br>`  <xs:documentation>The Solar Magnetic reference frame</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

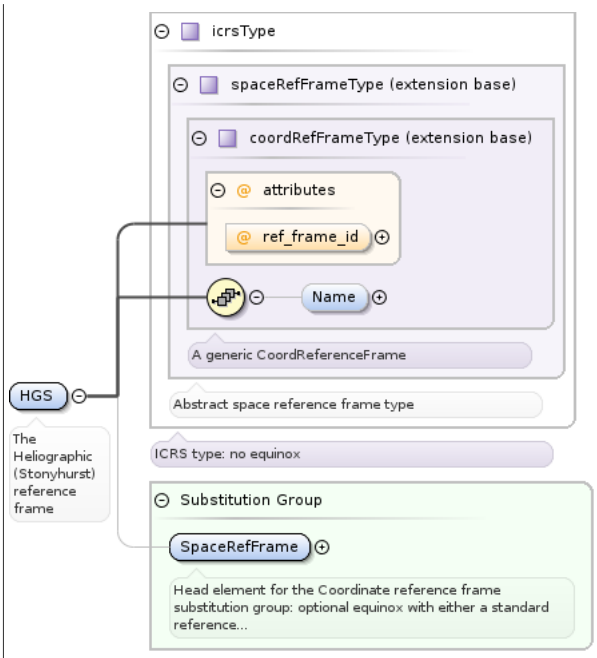
## Element HGC

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The Heliographic (Carrington) reference frame |

| | |
|---|---|
| Diagram |  |
| Type | icrsType |
| Type hierarchy | • coordRefFrameType<br>  • spaceRefFrameType<br>  • icrsType |
| Properties | content: complex |
| Substitution Group Affiliation | • SpaceRefFrame |
| Model | Name{0,1} |
| Children | Name |
| Instance | `<HGC ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Name>{0,1}</Name>`<br>`</HGC>` |
| Attributes | **QName** \| **Type** \| **Fixed** \| **Default** \| **Use**<br>**ref_frame_id** \| xs:IDREF \| \| \| optional |
| Source | `<xs:element name="HGC" type="icrsType" substitutionGroup="SpaceRefFrame">`<br>`  <xs:annotation>`<br>`  <xs:documentation>The Heliographic (Carrington) reference frame</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

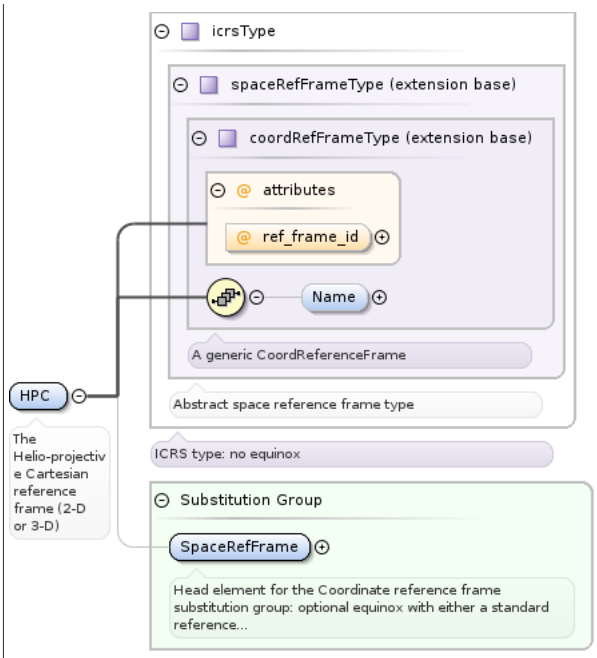
## Element HGS

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The Heliographic (Stonyhurst) reference frame |

| | |
|---|---|
| Diagram |  |
| Type | icrsType |
| Type hierarchy | • coordRefFrameType<br>  • spaceRefFrameType<br>  • icrsType |
| Properties | content: complex |
| Substitution Group Affiliation | • SpaceRefFrame |
| Model | Name{0,1} |
| Children | Name |
| Instance | <HGS ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <Name>{0,1}</Name><br></HGS> |
| Attributes | **QName** \| **Type** \| **Fixed** \| **Default** \| **Use**<br>**ref_frame_id** \| xs:IDREF \| \| \| optional |
| Source | <xs:element name="HGS" type="icrsType" substitutionGroup="SpaceRefFrame"><br>  <xs:annotation><br>  <xs:documentation>The Heliographic (Stonyhurst) reference frame</xs:documentation><br>  </xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

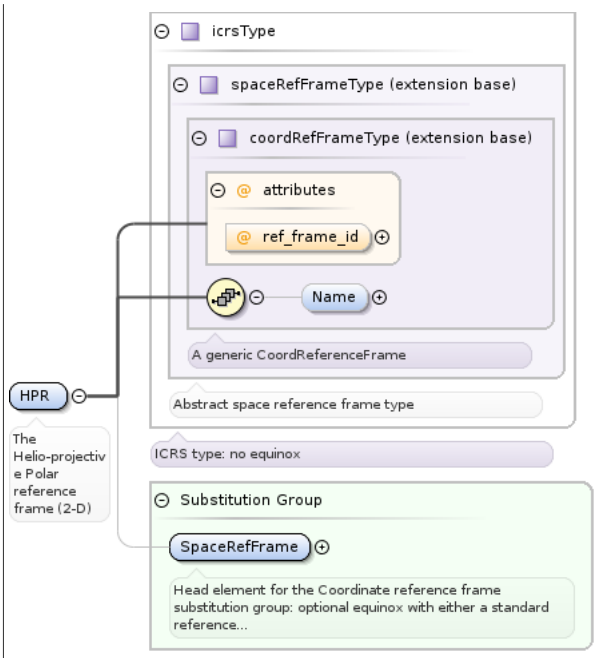
## Element HPC

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The Helio-projective Cartesian reference frame (2-D or 3-D) |

| | |
|---|---|
| Diagram |  |
| Type | icrsType |
| Type hierarchy | • coordRefFrameType<br>• spaceRefFrameType<br>• icrsType |
| Properties | content: complex |
| Substitution Group Affiliation | • SpaceRefFrame |
| Model | Name{0,1} |
| Children | Name |
| Instance | `<HPC ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Name>{0,1}</Name>`<br>`</HPC>` |
| Attributes | **QName** \| **Type** \| **Fixed** \| **Default** \| **Use**<br>**ref_frame_id** \| xs:IDREF \| \| \| optional |
| Source | `<xs:element name="HPC" type="icrsType" substitutionGroup="SpaceRefFrame">`<br>`  <xs:annotation>`<br>`  <xs:documentation>The Helio-projective Cartesian reference frame (2-D or 3-D)</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

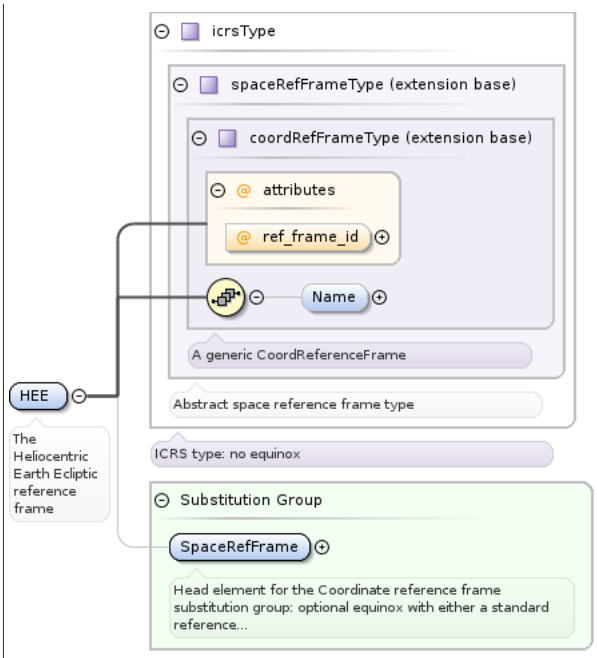
## Element HPR

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The Helio-projective Polar reference frame (2-D) |

| | |
|---|---|
| Diagram |  |
| Type | icrsType |
| Type hierarchy | • coordRefFrameType<br>• spaceRefFrameType<br>• icrsType |
| Properties | content: complex |
| Substitution Group Affiliation | • SpaceRefFrame |
| Model | Name{0,1} |
| Children | Name |
| Instance | `<HPR ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Name>{0,1}</Name>`<br>`</HPR>` |
| Attributes | **QName** \| **Type** \| **Fixed** \| **Default** \| **Use**<br>**ref_frame_id** \| xs:IDREF \| \| \| optional |
| Source | `<xs:element name="HPR" type="icrsType" substitutionGroup="SpaceRefFrame">`<br>`  <xs:annotation>`<br>`  <xs:documentation>The Helio-projective Polar reference frame (2-D)</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

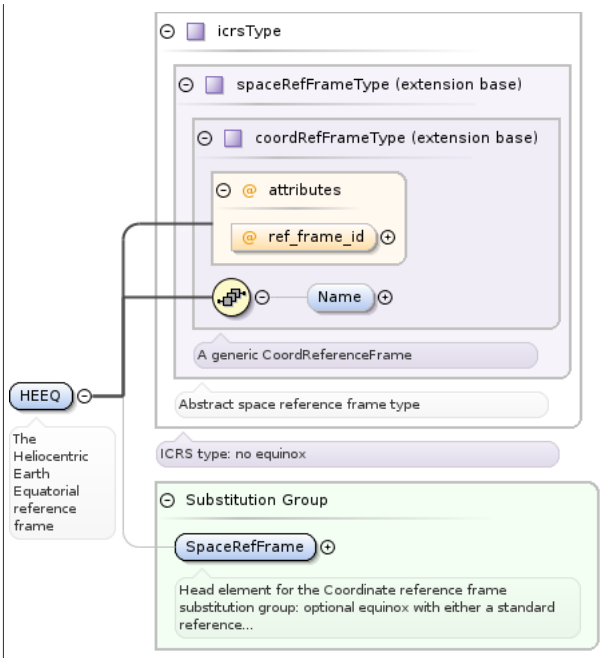
## Element HEE

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The Heliocentric Earth Ecliptic reference frame |

| | |
|---|---|
| Diagram |  |
| Type | icrsType |
| Type hierarchy | • coordRefFrameType<br>  • spaceRefFrameType<br>  • icrsType |
| Properties | content: complex |
| Substitution Group Affiliation | • SpaceRefFrame |
| Model | Name{0,1} |
| Children | Name |
| Instance | `<HEE ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Name>{0,1}</Name>`<br>`</HEE>` |
| Attributes | **QName** \| **Type** \| **Fixed** \| **Default** \| **Use**<br>**ref_frame_id** \| xs:IDREF \| \| \| optional |
| Source | `<xs:element name="HEE" type="icrsType" substitutionGroup="SpaceRefFrame">`<br>`  <xs:annotation>`<br>`  <xs:documentation>The Heliocentric Earth Ecliptic reference frame</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

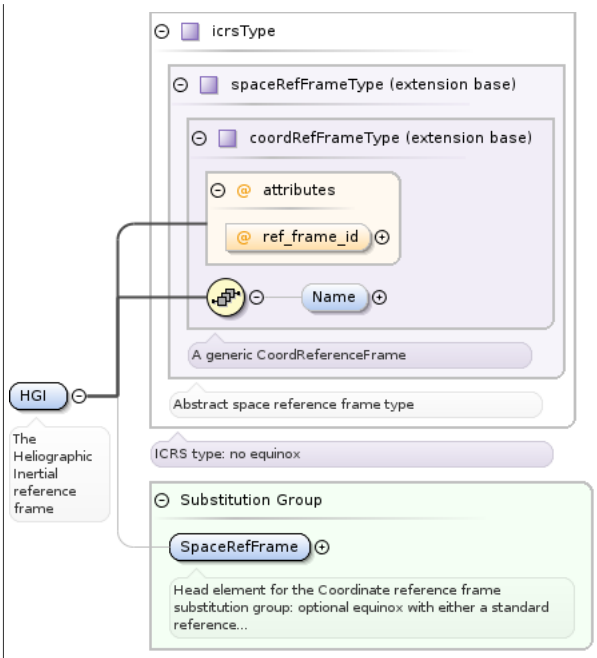
## Element HEEQ

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The Heliocentric Earth Equatorial reference frame |

| | |
|---|---|
| Diagram |  |
| Type | icrsType |
| Type hierarchy | • coordRefFrameType<br>• spaceRefFrameType<br>• icrsType |
| Properties | content: complex |
| Substitution Group Affiliation | • SpaceRefFrame |
| Model | Name{0,1} |
| Children | Name |
| Instance | `<HEEQ ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Name>{0,1}</Name>`<br>`</HEEQ>` |
| Attributes | **QName** \| **Type** \| **Fixed** \| **Default** \| **Use**<br>**ref_frame_id** \| xs:IDREF \| \| \| optional |
| Source | `<xs:element name="HEEQ" type="icrsType" substitutionGroup="SpaceRefFrame">`<br>`  <xs:annotation>`<br>`  <xs:documentation>The Heliocentric Earth Equatorial reference frame</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

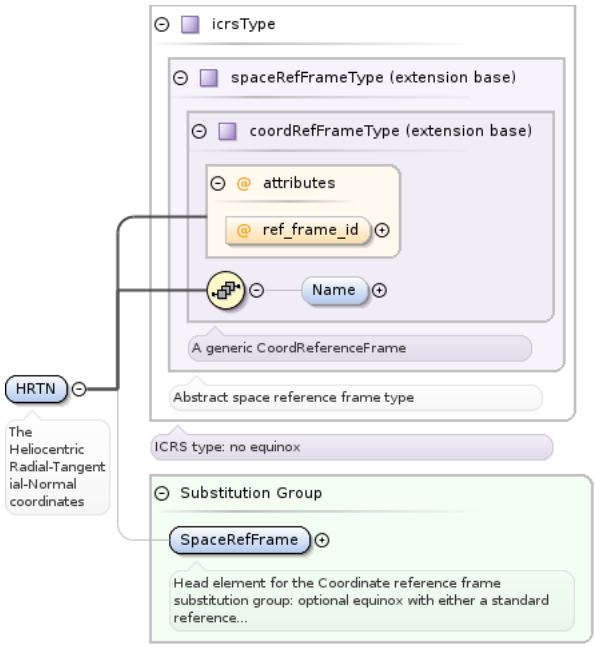
## Element HGI

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The Heliographic Inertial reference frame |

| | |
|---|---|
| Diagram |  |
| Type | icrsType |
| Type hierarchy | • coordRefFrameType<br>• spaceRefFrameType<br>• icrsType |
| Properties | content: complex |
| Substitution Group Affiliation | • SpaceRefFrame |
| Model | Name{0,1} |
| Children | Name |
| Instance | `<HGI ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Name>{0,1}</Name>`<br>`</HGI>` |
| Attributes | **QName** \| **Type** \| **Fixed** \| **Default** \| **Use**<br>**ref_frame_id** \| xs:IDREF \| \| \| optional |
| Source | `<xs:element name="HGI" type="icrsType" substitutionGroup="SpaceRefFrame">`<br>`  <xs:annotation>`<br>`  <xs:documentation>The Heliographic Inertial reference frame</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

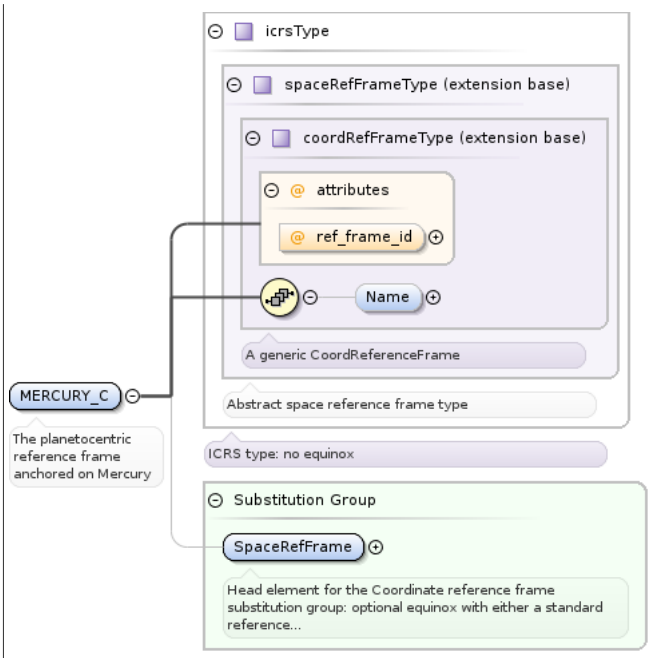
## Element HRTN

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The Heliocentric Radial-Tangential-Normal coordinates |

| | |
|---|---|
| Diagram |  |
| Type | icrsType |
| Type hierarchy | • coordRefFrameType<br>  • spaceRefFrameType<br>  • icrsType |
| Properties | content: complex |
| Substitution Group Affiliation | • SpaceRefFrame |
| Model | Name{0,1} |
| Children | Name |
| Instance | `<HRTN ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Name>{0,1}</Name>`<br>`</HRTN>` |
| Attributes | **QName** \| **Type** \| **Fixed** \| **Default** \| **Use**<br>**ref_frame_id** \| xs:IDREF \| \| \| optional |
| Source | `<xs:element name="HRTN" type="icrsType" substitutionGroup="SpaceRefFrame">`<br>`  <xs:annotation>`<br>`  <xs:documentation>The Heliocentric Radial-Tangential-Normal coordinates</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

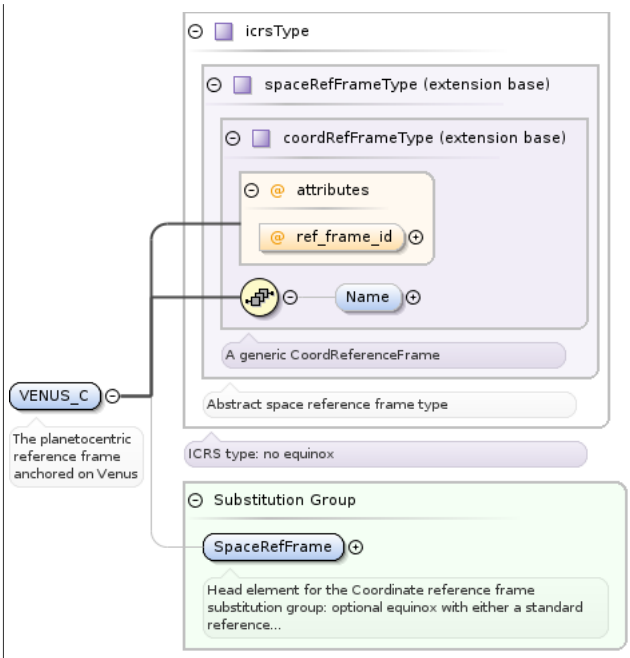
## Element MERCURY_C

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The planetocentric reference frame anchored on Mercury |

| | |
|---|---|
| Diagram |  |
| Type | icrsType |
| Type hierarchy | • coordRefFrameType<br>• spaceRefFrameType<br>• icrsType |
| Properties | content: complex |
| Substitution Group Affiliation | • SpaceRefFrame |
| Model | Name{0,1} |
| Children | Name |
| Instance | `<MERCURY_C ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Name>{0,1}</Name>`<br>`</MERCURY_C>` |
| Attributes | **QName** \| **Type** \| **Fixed** \| **Default** \| **Use**<br>**ref_frame_id** \| xs:IDREF \| \| \| optional |
| Source | `<xs:element name="MERCURY_C" type="icrsType" substitutionGroup="SpaceRefFrame">`<br>`  <xs:annotation>`<br>`  <xs:documentation>The planetocentric reference frame anchored on Mercury</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

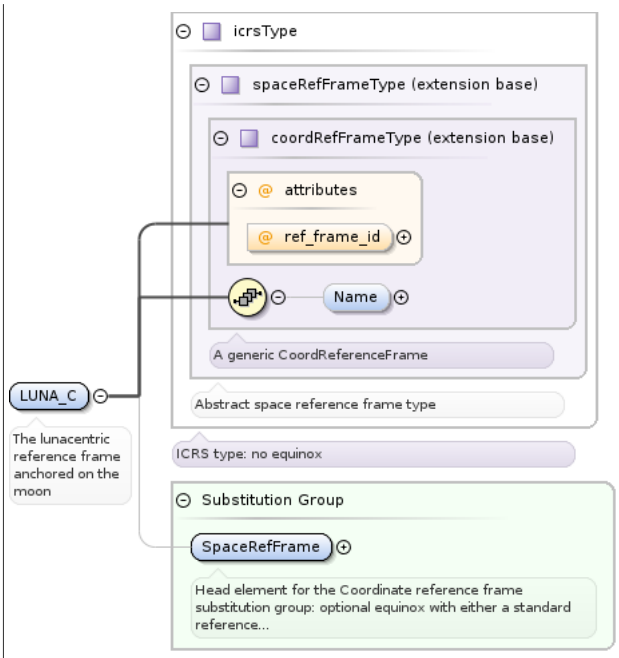
## Element VENUS_C

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The planetocentric reference frame anchored on Venus |

| | |
|---|---|
| Diagram |  |
| Type | icrsType |
| Type hierarchy | • coordRefFrameType<br>  • spaceRefFrameType<br>  • icrsType |
| Properties | content: complex |
| Substitution Group Affiliation | • SpaceRefFrame |
| Model | Name{0,1} |
| Children | Name |
| Instance | `<VENUS_C ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Name>{0,1}</Name>`<br>`</VENUS_C>` |
| Attributes | **QName** \| **Type** \| **Fixed** \| **Default** \| **Use**<br>**ref_frame_id** \| xs:IDREF \| \| \| optional |
| Source | `<xs:element name="VENUS_C" type="icrsType" substitutionGroup="SpaceRefFrame">`<br>`  <xs:annotation>`<br>`  <xs:documentation>The planetocentric reference frame anchored on Venus</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

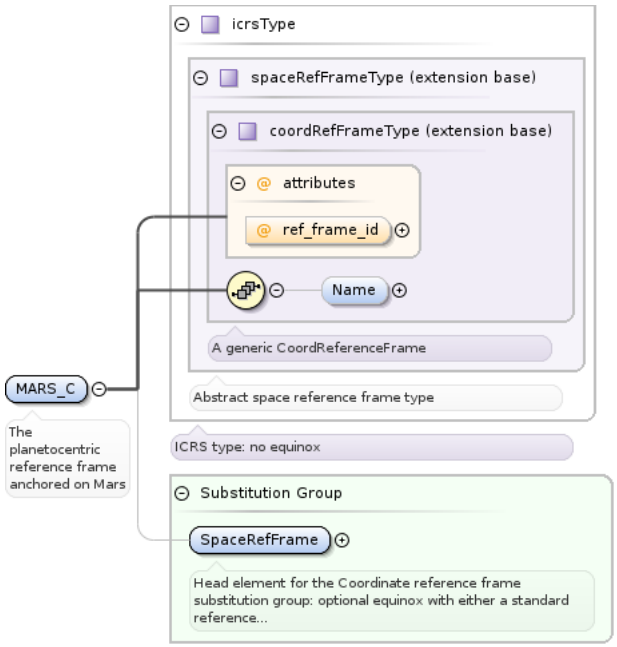
## Element LUNA_C

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The lunacentric reference frame anchored on the moon |

| | |
|---|---|
| Diagram |  |
| Type | icrsType |
| Type hierarchy | • coordRefFrameType<br>• spaceRefFrameType<br>• icrsType |
| Properties | content: complex |
| Substitution Group Affiliation | • SpaceRefFrame |
| Model | Name{0,1} |
| Children | Name |
| Instance | `<LUNA_C ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Name>{0,1}</Name>`<br>`</LUNA_C>` |
| Attributes | **QName** \| **Type** \| **Fixed** \| **Default** \| **Use**<br>**ref_frame_id** \| xs:IDREF \| \| \| optional |
| Source | `<xs:element name="LUNA_C" type="icrsType" substitutionGroup="SpaceRefFrame">`<br>`  <xs:annotation>`<br>`  <xs:documentation>The lunacentric reference frame anchored on the moon</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

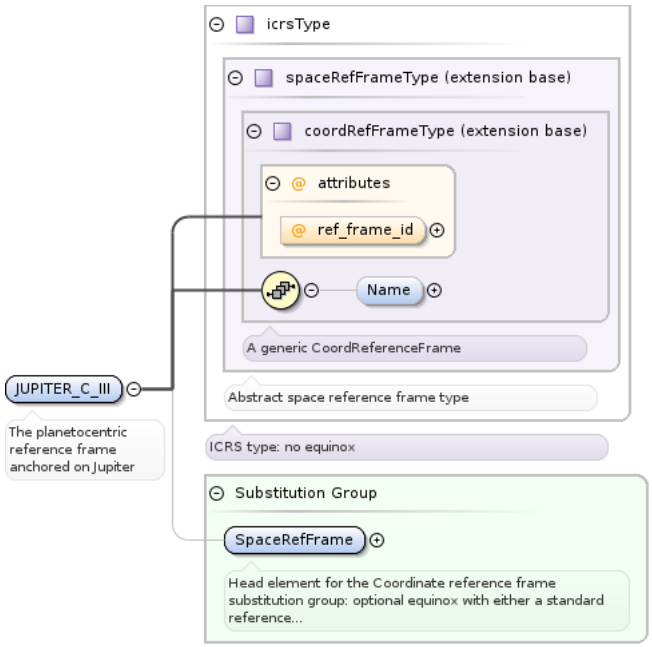
## Element MARS_C

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The planetocentric reference frame anchored on Mars |

| | |
|---|---|
| Diagram |  |
| Type | icrsType |
| Type hierarchy | • coordRefFrameType<br>• spaceRefFrameType<br>• icrsType |
| Properties | content: complex |
| Substitution Group Affiliation | • SpaceRefFrame |
| Model | Name{0,1} |
| Children | Name |
| Instance | `<MARS_C ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Name>{0,1}</Name>`<br>`</MARS_C>` |
| Attributes | **QName** \| **Type** \| **Fixed** \| **Default** \| **Use**<br>**ref_frame_id** \| xs:IDREF \| \| \| optional |
| Source | `<xs:element name="MARS_C" type="icrsType" substitutionGroup="SpaceRefFrame">`<br>`  <xs:annotation>`<br>`  <xs:documentation>The planetocentric reference frame anchored on Mars</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

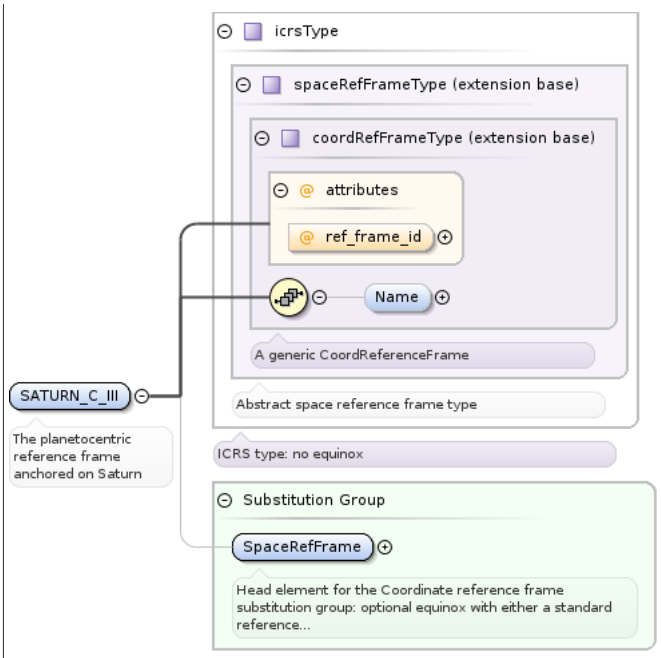
## Element JUPITER_C_III

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The planetocentric reference frame anchored on Jupiter |

| | |
|---|---|
| Diagram |  |
| Type | icrsType |
| Type hierarchy | • coordRefFrameType<br>• spaceRefFrameType<br>• icrsType |
| Properties | content: complex |
| Substitution Group Affiliation | • SpaceRefFrame |
| Model | Name{0,1} |
| Children | Name |
| Instance | `<JUPITER_C_III ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Name>{0,1}</Name>`<br>`</JUPITER_C_III>` |
| Attributes | **QName** \| **Type** \| **Fixed** \| **Default** \| **Use**<br>**ref_frame_id** \| xs:IDREF \| \| \| optional |
| Source | `<xs:element name="JUPITER_C_III" type="icrsType" substitutionGroup="SpaceRefFrame">`<br>`  <xs:annotation>`<br>`  <xs:documentation>The planetocentric reference frame anchored on Jupiter</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

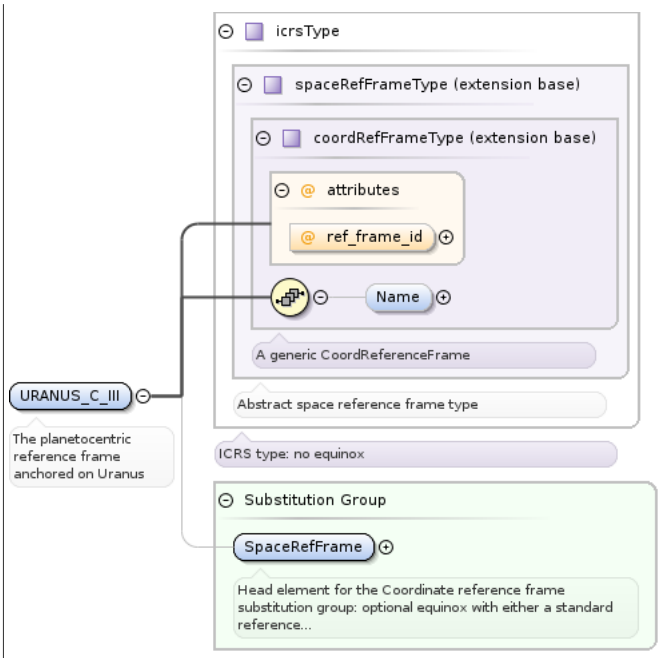
## Element SATURN_C_III

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The planetocentric reference frame anchored on Saturn |

| | |
|---|---|
| Diagram |  |
| Type | icrsType |
| Type hierarchy | • coordRefFrameType<br>• spaceRefFrameType<br>• icrsType |
| Properties | content: complex |
| Substitution Group Affiliation | • SpaceRefFrame |
| Model | Name{0,1} |
| Children | Name |
| Instance | `<SATURN_C_III ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Name>{0,1}</Name>`<br>`</SATURN_C_III>` |
| Attributes | **QName** \| **Type** \| **Fixed** \| **Default** \| **Use**<br>**ref_frame_id** \| xs:IDREF \| \| \| optional |
| Source | `<xs:element name="SATURN_C_III" type="icrsType" substitutionGroup="SpaceRefFrame">`<br>`  <xs:annotation>`<br>`  <xs:documentation>The planetocentric reference frame anchored on Saturn</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

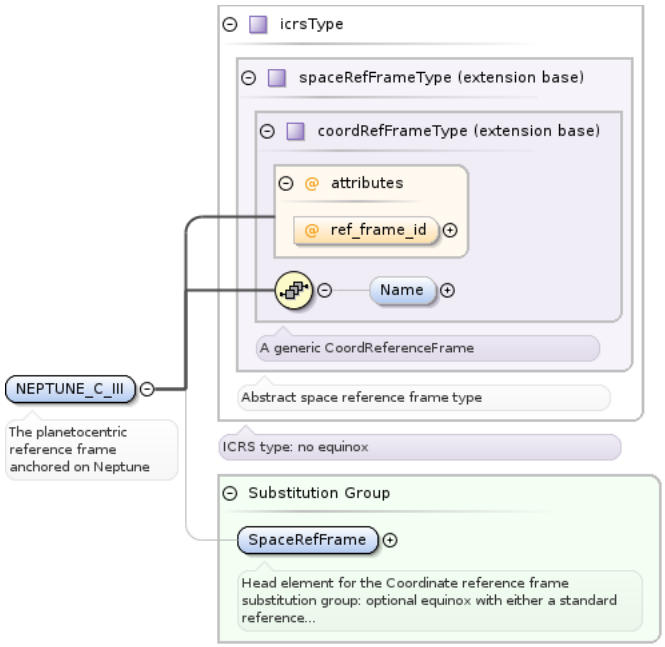
## Element URANUS_C_III

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The planetocentric reference frame anchored on Uranus |

| | |
|---|---|
| Diagram |  |
| Type | icrsType |
| Type hierarchy | • coordRefFrameType<br>• spaceRefFrameType<br>• icrsType |
| Properties | content: complex |
| Substitution Group Affiliation | • SpaceRefFrame |
| Model | Name{0,1} |
| Children | Name |
| Instance | `<URANUS_C_III ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Name>{0,1}</Name>`<br>`</URANUS_C_III>` |
| Attributes | **QName** \| **Type** \| **Fixed** \| **Default** \| **Use**<br>**ref_frame_id** \| xs:IDREF \| \| \| optional |
| Source | `<xs:element name="URANUS_C_III" type="icrsType" substitutionGroup="SpaceRefFrame">`<br>`  <xs:annotation>`<br>`  <xs:documentation>The planetocentric reference frame anchored on Uranus</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

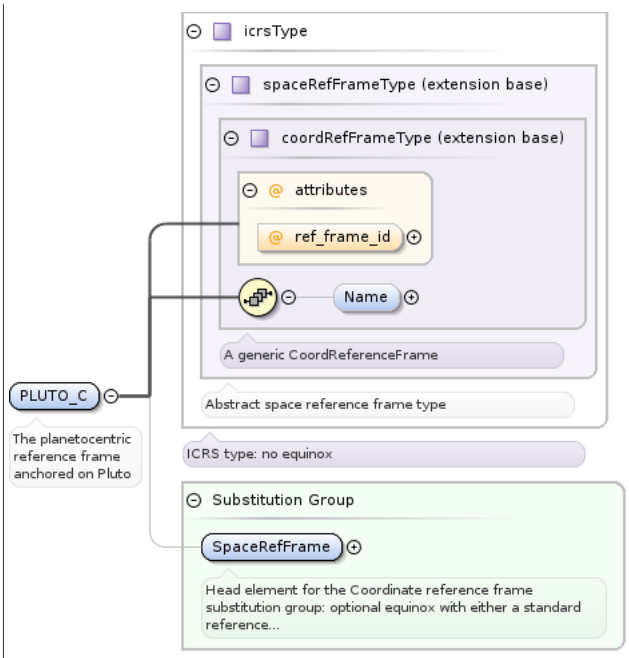
## Element NEPTUNE_C_III

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The planetocentric reference frame anchored on Neptune |

| | |
|---|---|
| Diagram |  |
| Type | icrsType |
| Type hierarchy | • coordRefFrameType<br>• spaceRefFrameType<br>• icrsType |
| Properties | content: complex |
| Substitution Group Affiliation | • SpaceRefFrame |
| Model | Name{0,1} |
| Children | Name |
| Instance | `<NEPTUNE_C_III ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Name>{0,1}</Name>`<br>`</NEPTUNE_C_III>` |
| Attributes | **QName** \| **Type** \| **Fixed** \| **Default** \| **Use**<br>**ref_frame_id** \| xs:IDREF \| \| \| optional |
| Source | `<xs:element name="NEPTUNE_C_III" type="icrsType" substitutionGroup="SpaceRefFrame">`<br>`  <xs:annotation>`<br>`  <xs:documentation>The planetocentric reference frame anchored on Neptune</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

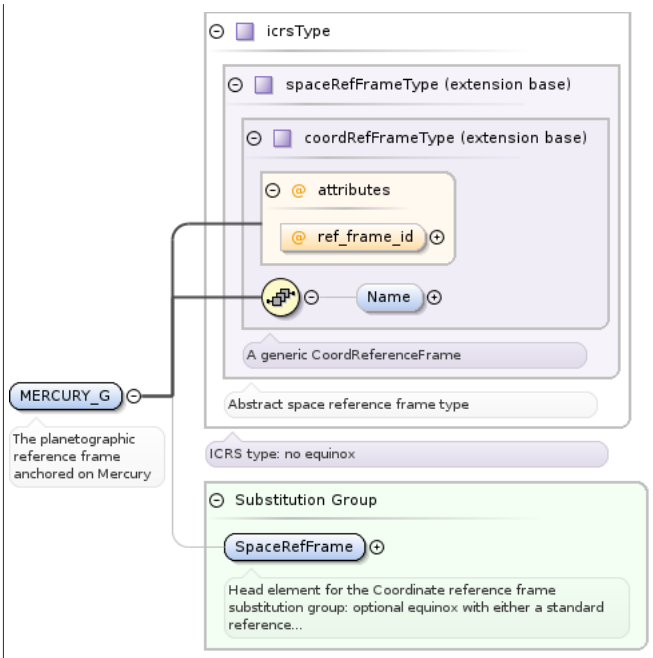
## Element PLUTO_C

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The planetocentric reference frame anchored on Pluto |

| | |
|---|---|
| Diagram |  |
| Type | icrsType |
| Type hierarchy | • coordRefFrameType<br>• spaceRefFrameType<br>• icrsType |
| Properties | content: complex |
| Substitution Group Affiliation | • SpaceRefFrame |
| Model | Name{0,1} |
| Children | Name |
| Instance | `<PLUTO_C ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Name>{0,1}</Name>`<br>`</PLUTO_C>` |
| Attributes | **QName** \| **Type** \| **Fixed** \| **Default** \| **Use**<br>**ref_frame_id** \| xs:IDREF \| \| \| optional |
| Source | `<xs:element name="PLUTO_C" type="icrsType" substitutionGroup="SpaceRefFrame">`<br>`  <xs:annotation>`<br>`  <xs:documentation>The planetocentric reference frame anchored on Pluto</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

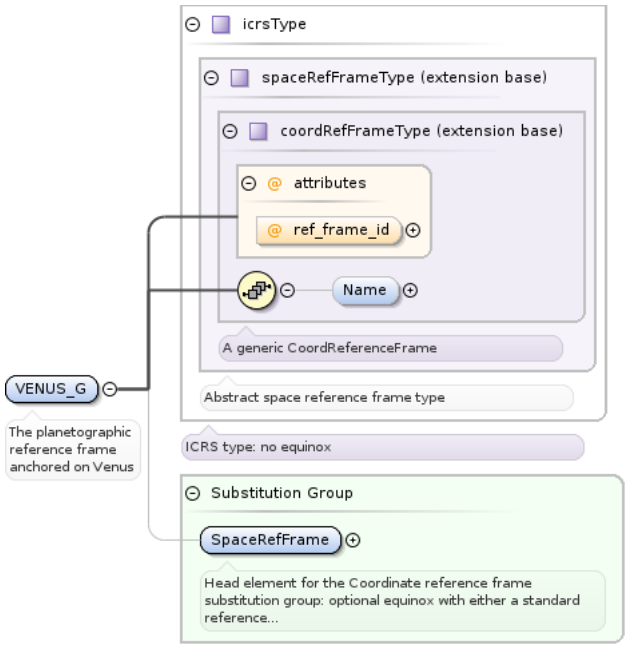
## Element MERCURY_G

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The planetographic reference frame anchored on Mercury |

| | |
|---|---|
| Diagram |  |
| Type | icrsType |
| Type hierarchy | • coordRefFrameType<br>• spaceRefFrameType<br>• icrsType |
| Properties | content: complex |
| Substitution Group Affiliation | • SpaceRefFrame |
| Model | Name{0,1} |
| Children | Name |
| Instance | `<MERCURY_G ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Name>{0,1}</Name>`<br>`</MERCURY_G>` |
| Attributes | **QName** \| **Type** \| **Fixed** \| **Default** \| **Use**<br>**ref_frame_id** \| xs:IDREF \| \| \| optional |
| Source | `<xs:element name="MERCURY_G" type="icrsType" substitutionGroup="SpaceRefFrame">`<br>`  <xs:annotation>`<br>`  <xs:documentation>The planetographic reference frame anchored on Mercury</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

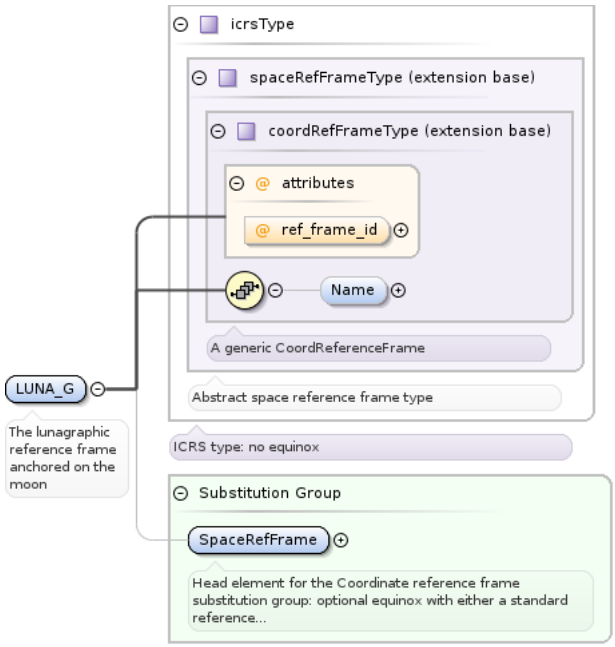
## Element VENUS_G

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The planetographic reference frame anchored on Venus |

| | |
|---|---|
| Diagram |  |
| Type | icrsType |
| Type hierarchy | • coordRefFrameType<br>• spaceRefFrameType<br>• icrsType |
| Properties | content: complex |
| Substitution Group Affiliation | • SpaceRefFrame |
| Model | Name{0,1} |
| Children | Name |
| Instance | `<VENUS_G ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Name>{0,1}</Name>`<br>`</VENUS_G>` |
| Attributes | **QName** \| **Type** \| **Fixed** \| **Default** \| **Use**<br>**ref_frame_id** \| xs:IDREF \| \| \| optional |
| Source | `<xs:element name="VENUS_G" type="icrsType" substitutionGroup="SpaceRefFrame">`<br>`  <xs:annotation>`<br>`  <xs:documentation>The planetographic reference frame anchored on Venus</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

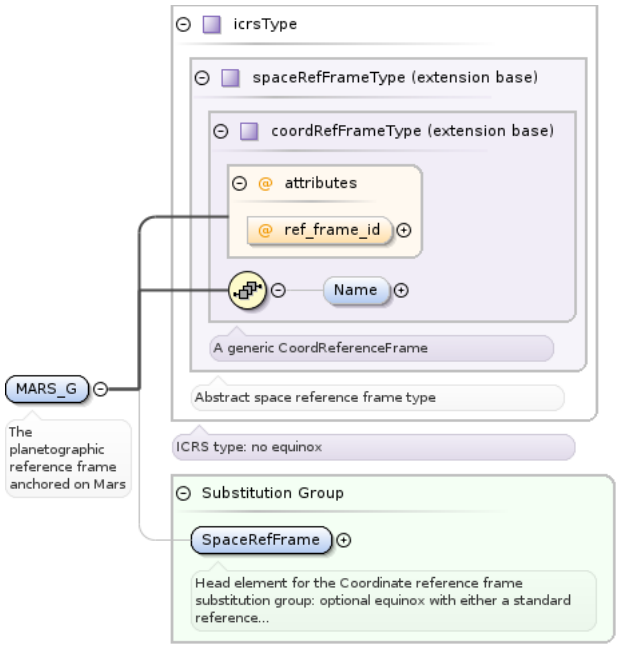
## Element LUNA_G

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The lunagraphic reference frame anchored on the moon |

| | |
|---|---|
| Diagram |  |
| Type | icrsType |
| Type hierarchy | • coordRefFrameType<br>• spaceRefFrameType<br>• icrsType |
| Properties | content: complex |
| Substitution Group Affiliation | • SpaceRefFrame |
| Model | Name{0,1} |
| Children | Name |
| Instance | `<LUNA_G ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Name>{0,1}</Name>`<br>`</LUNA_G>` |
| Attributes | **QName** \| **Type** \| **Fixed** \| **Default** \| **Use**<br>**ref_frame_id** \| xs:IDREF \| \| \| optional |
| Source | `<xs:element name="LUNA_G" type="icrsType" substitutionGroup="SpaceRefFrame">`<br>`  <xs:annotation>`<br>`  <xs:documentation>The lunagraphic reference frame anchored on the moon</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

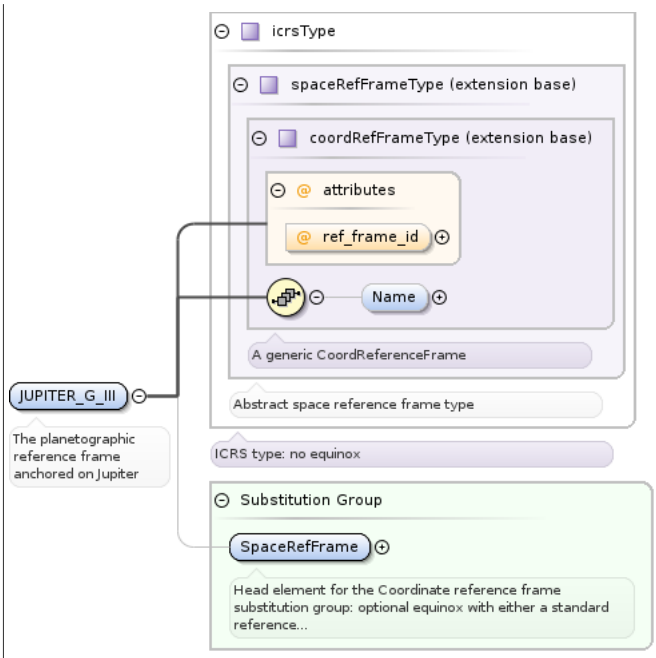
## Element MARS_G

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The planetographic reference frame anchored on Mars |

| | |
|---|---|
| Diagram |  |
| Type | icrsType |
| Type hierarchy | • coordRefFrameType<br>• spaceRefFrameType<br>• icrsType |
| Properties | content: complex |
| Substitution Group Affiliation | • SpaceRefFrame |
| Model | Name{0,1} |
| Children | Name |
| Instance | `<MARS_G ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Name>{0,1}</Name>`<br>`</MARS_G>` |
| Attributes | **QName** \| **Type** \| **Fixed** \| **Default** \| **Use**<br>**ref_frame_id** \| xs:IDREF \| \| \| optional |
| Source | `<xs:element name="MARS_G" type="icrsType" substitutionGroup="SpaceRefFrame">`<br>`  <xs:annotation>`<br>`  <xs:documentation>The planetographic reference frame anchored on Mars</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

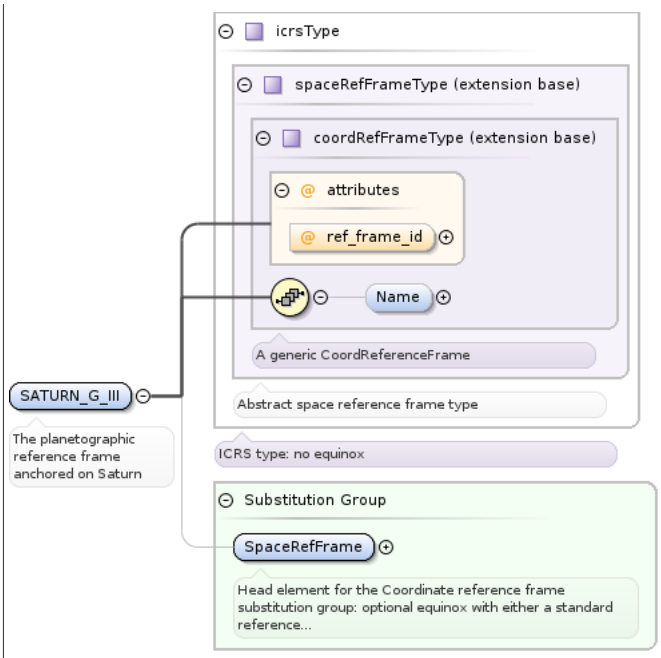
## Element JUPITER_G_III

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The planetographic reference frame anchored on Jupiter |

| | |
|---|---|
| Diagram |  |
| Type | icrsType |
| Type hierarchy | • coordRefFrameType<br>• spaceRefFrameType<br>• icrsType |
| Properties | content: complex |
| Substitution Group Affiliation | • SpaceRefFrame |
| Model | Name{0,1} |
| Children | Name |
| Instance | `<JUPITER_G_III ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Name>{0,1}</Name>`<br>`</JUPITER_G_III>` |
| Attributes | **QName** \| **Type** \| **Fixed** \| **Default** \| **Use**<br>**ref_frame_id** \| xs:IDREF \| \| \| optional |
| Source | `<xs:element name="JUPITER_G_III" type="icrsType" substitutionGroup="SpaceRefFrame">`<br>`  <xs:annotation>`<br>`  <xs:documentation>The planetographic reference frame anchored on Jupiter</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

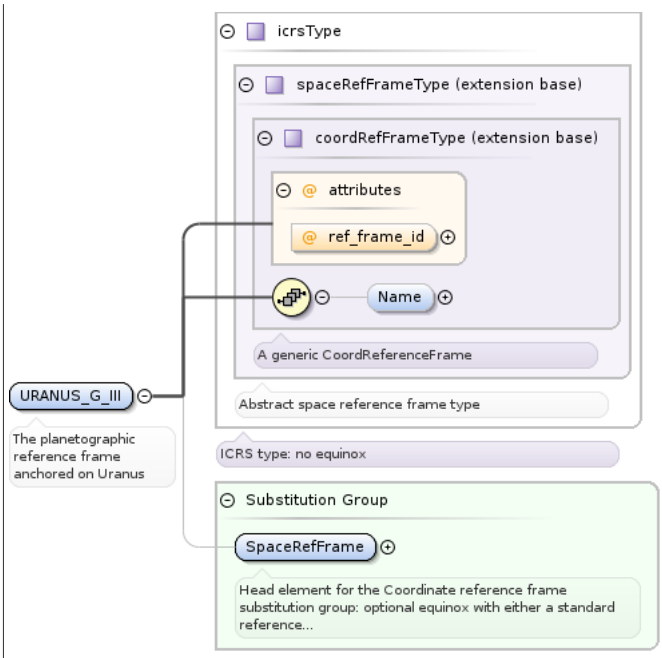
## Element SATURN_G_III

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The planetographic reference frame anchored on Saturn |

| | |
|---|---|
| Diagram |  |
| Type | icrsType |
| Type hierarchy | • coordRefFrameType<br>• spaceRefFrameType<br>• icrsType |
| Properties | content: `complex` |
| `Substitution Group Affiliation` | • SpaceRefFrame |
| Model | Name{0,1} |
| Children | Name |
| `Instance` | `<SATURN_G_III ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Name>{0,1}</Name>`<br>`</SATURN_G_III>` |
| Attributes | **QName** \| **Type** \| **Fixed** \| **Default** \| **Use**<br>**ref_frame_id** \| xs:IDREF \| \| \| optional |
| `Source` | `<xs:element name="SATURN_G_III" type="icrsType" substitutionGroup="SpaceRefFrame">`<br>`  <xs:annotation>`<br>`  <xs:documentation>The planetographic reference frame anchored on Saturn</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

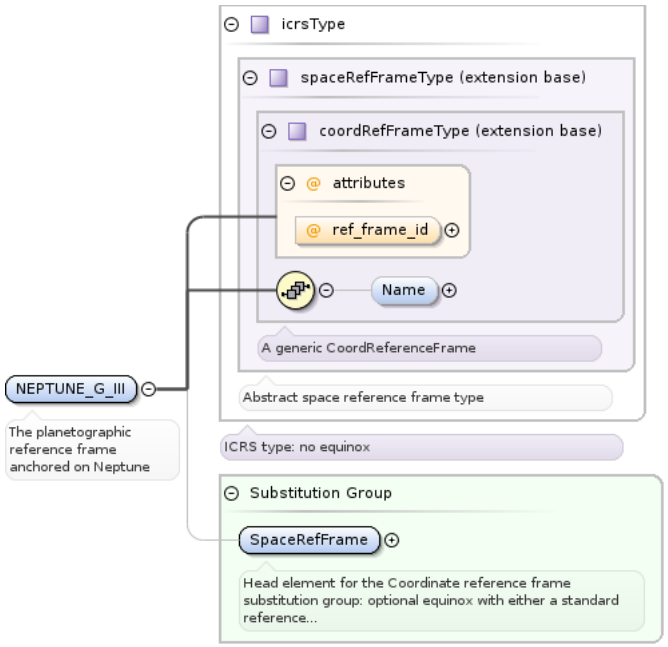
## Element `URANUS_G_III`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `The planetographic reference frame anchored on Uranus` |

| | |
|---|---|
| Diagram |  |
| Type | icrsType |
| Type hierarchy | • coordRefFrameType<br>• spaceRefFrameType<br>• icrsType |
| Properties | content: `complex` |
| `Substitution Group Affiliation` | • SpaceRefFrame |
| Model | Name{0,1} |
| Children | Name |
| `Instance` | `<URANUS_G_III ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Name>{0,1}</Name>`<br>`</URANUS_G_III>` |
| Attributes | **QName** \| **Type** \| **Fixed** \| **Default** \| **Use**<br>**ref_frame_id** \| xs:IDREF \| \| \| optional |
| `Source` | `<xs:element name="URANUS_G_III" type="icrsType" substitutionGroup="SpaceRefFrame">`<br>`  <xs:annotation>`<br>`  <xs:documentation>The planetographic reference frame anchored on Uranus</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

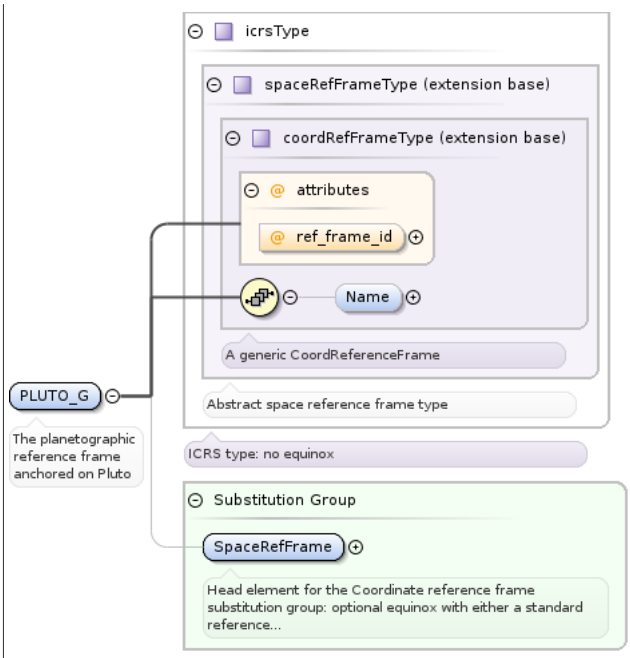
## Element `NEPTUNE_G_III`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `The planetographic reference frame anchored on Neptune` |

| | |
|---|---|
| Diagram |  |
| Type | icrsType |
| Type hierarchy | • coordRefFrameType<br>• spaceRefFrameType<br>• icrsType |
| Properties | content: complex |
| Substitution Group Affiliation | • SpaceRefFrame |
| Model | Name{0,1} |
| Children | Name |
| Instance | `<NEPTUNE_G_III ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Name>{0,1}</Name>`<br>`</NEPTUNE_G_III>` |
| Attributes | **QName** \| **Type** \| **Fixed** \| **Default** \| **Use**<br>**ref_frame_id** \| xs:IDREF \| \| \| optional |
| Source | `<xs:element name="NEPTUNE_G_III" type="icrsType" substitutionGroup="SpaceRefFrame">`<br>`  <xs:annotation>`<br>`  <xs:documentation>The planetographic reference frame anchored on Neptune</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

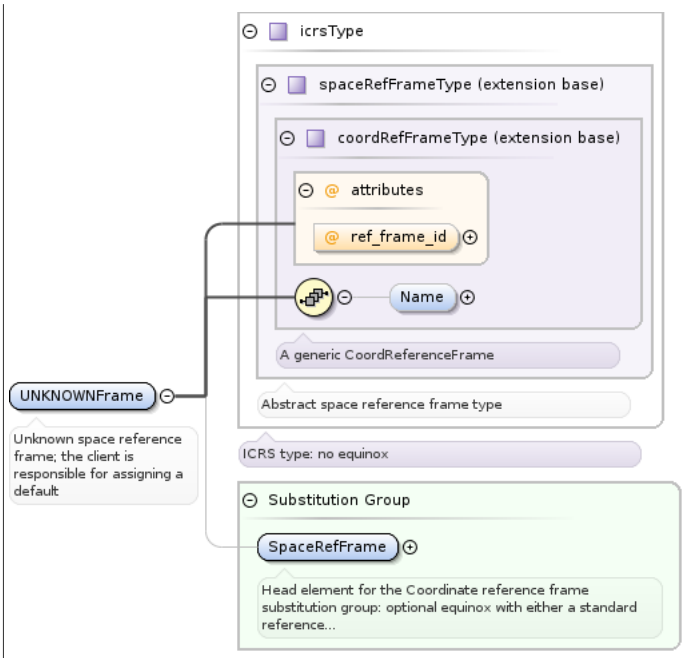
## Element PLUTO_G

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The planetographic reference frame anchored on Pluto |

| | |
|---|---|
| Diagram |  |
| Type | icrsType |
| Type hierarchy | • coordRefFrameType<br>• spaceRefFrameType<br>• icrsType |
| Properties | content: complex |
| Substitution Group Affiliation | • SpaceRefFrame |
| Model | Name{0,1} |
| Children | Name |
| Instance | `<PLUTO_G ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Name>{0,1}</Name>`<br>`</PLUTO_G>` |
| Attributes | **QName** \| **Type** \| **Fixed** \| **Default** \| **Use**<br>**ref_frame_id** \| xs:IDREF \| \| \| optional |
| Source | `<xs:element name="PLUTO_G" type="icrsType" substitutionGroup="SpaceRefFrame">`<br>`  <xs:annotation>`<br>`  <xs:documentation>The planetographic reference frame anchored on Pluto</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

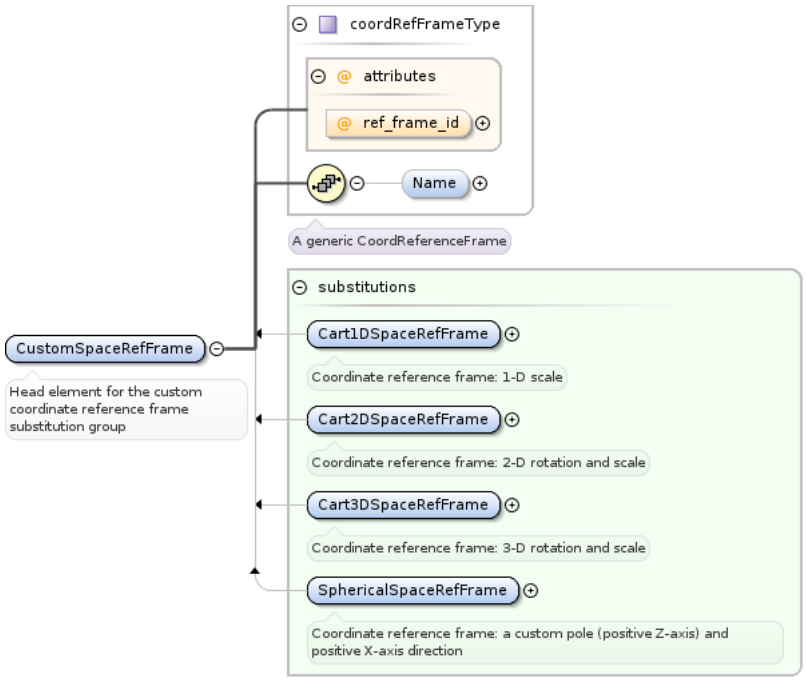
## Element UNKNOWNFrame

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Unknown space reference frame; the client is responsible for assigning a default |

| | |
|---|---|
| Diagram |  |
| Type | icrsType |
| Type hierarchy | • coordRefFrameType<br>• spaceRefFrameType<br>• icrsType |
| Properties | content: `complex` |
| `Substitution Group Affiliation` | • SpaceRefFrame |
| Model | Name{0,1} |
| Children | Name |
| `Instance` | `<UNKNOWNFrame ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Name>{0,1}</Name>`<br>`</UNKNOWNFrame>` |
| Attributes | **QName** \| **Type** \| **Fixed** \| **Default** \| **Use**<br>**ref_frame_id** \| xs:IDREF \| \| \| optional |
| `Source` | `<xs:element name="UNKNOWNFrame" type="icrsType" substitutionGroup="SpaceRefFrame">`<br>`  <xs:annotation>`<br>`  <xs:documentation>Unknown space reference frame; the client is responsible for assigning a default</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

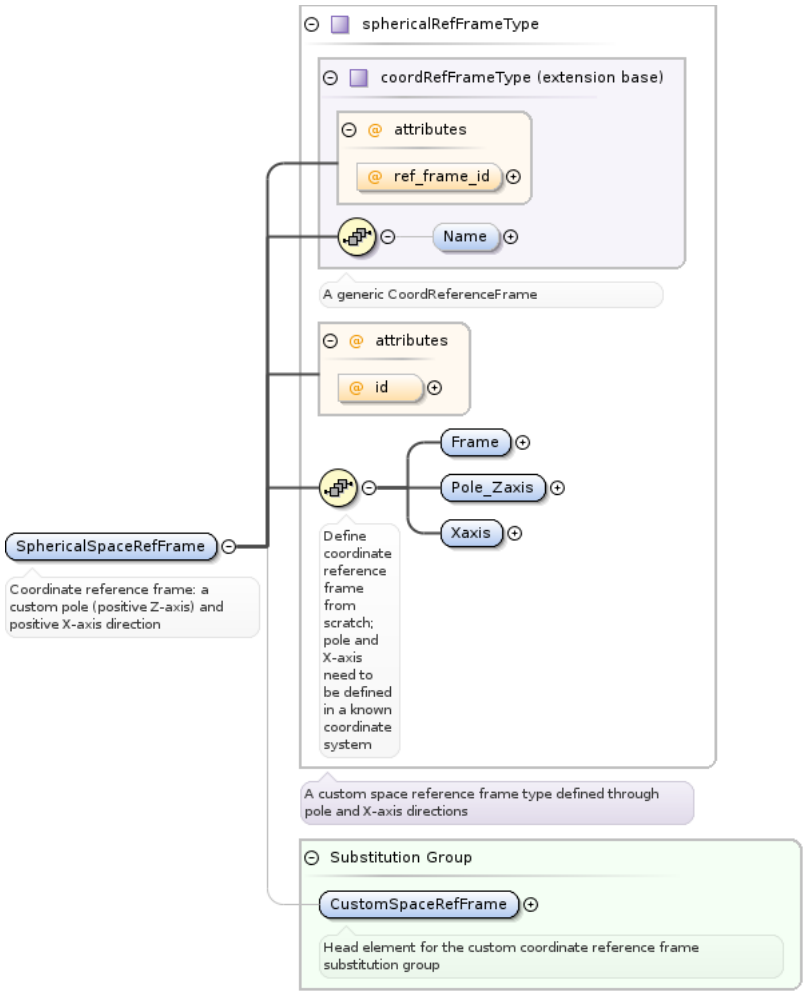
## Element `CustomSpaceRefFrame`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `Head element for the custom coordinate reference frame substitution group` |

| | |
|---|---|
| Diagram |  |
| Type | coordRefFrameType |
| Properties | content: `complex`<br>abstract: `true` |
| `Substitution Group` | • SphericalSpaceRefFrame<br>• Cart1DSpaceRefFrame<br>• Cart2DSpaceRefFrame<br>• Cart3DSpaceRefFrame |
| Model | Name{0,1} |
| Children | Name |
| `Instance` | `<CustomSpaceRefFrame ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Name>{0,1}</Name>`<br>`</CustomSpaceRefFrame>` |
| Attributes | **QName** \| **Type** \| **Fixed** \| **Default** \| **Use**<br>**ref_frame_id** \| xs:IDREF \| \| \| optional |
| `Source` | `<xs:element name="CustomSpaceRefFrame" type="coordRefFrameType" abstract="true">`<br>`  <xs:annotation>`<br>`  <xs:documentation>Head element for the custom coordinate reference frame substitution group</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `SphericalSpaceRefFrame`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `Coordinate reference frame: a custom pole (positive Z-axis) and positive X-axis direction` |

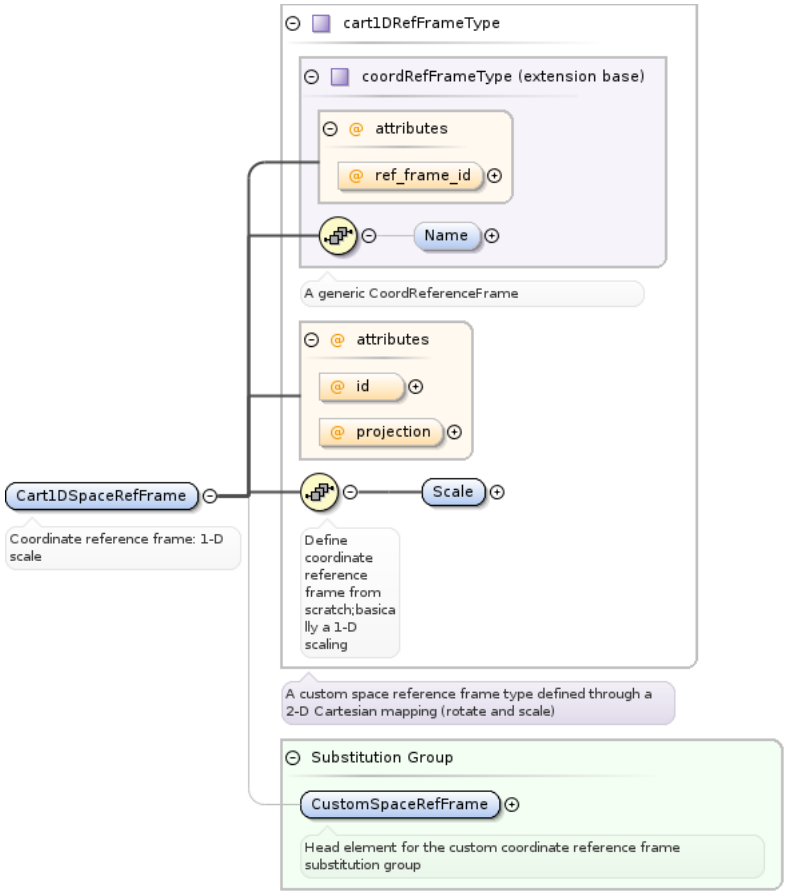
| | |
|---|---|
| Diagram |  |
| Type | sphericalRefFrameType |
| Type hierarchy | • coordRefFrameType<br>  • sphericalRefFrameType |
| Properties | content: complex |
| Substitution Group Affiliation | • CustomSpaceRefFrame |
| Model | Name{0,1} , Frame , Pole_Zaxis , Xaxis |
| Children | Frame, Name, Pole_Zaxis, Xaxis |
| Instance | <SphericalSpaceRefFrame id="" ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <Name>{0,1}</Name><br>  <Frame>{1,1}</Frame><br>  <Pole_Zaxis coord_system_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simpl<br>Pole_Zaxis><br>  <Xaxis coord_system_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" uc<br>Xaxis><br></SphericalSpaceRefFrame> |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **id** | xs:ID | | | optional |
| **ref_frame_id** | xs:IDREF | | | optional |

| | |
|---|---|
| Source | <xs:element name="SphericalSpaceRefFrame" type="sphericalRefFrameType"<br> substitutionGroup="CustomSpaceRefFrame"><br>  <xs:annotation><br>  <xs:documentation>Coordinate reference frame: a custom pole (positive Z-axis) and<br> positive X-axis direction</xs:documentation><br>  </xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `Cart1DSpaceRefFrame`

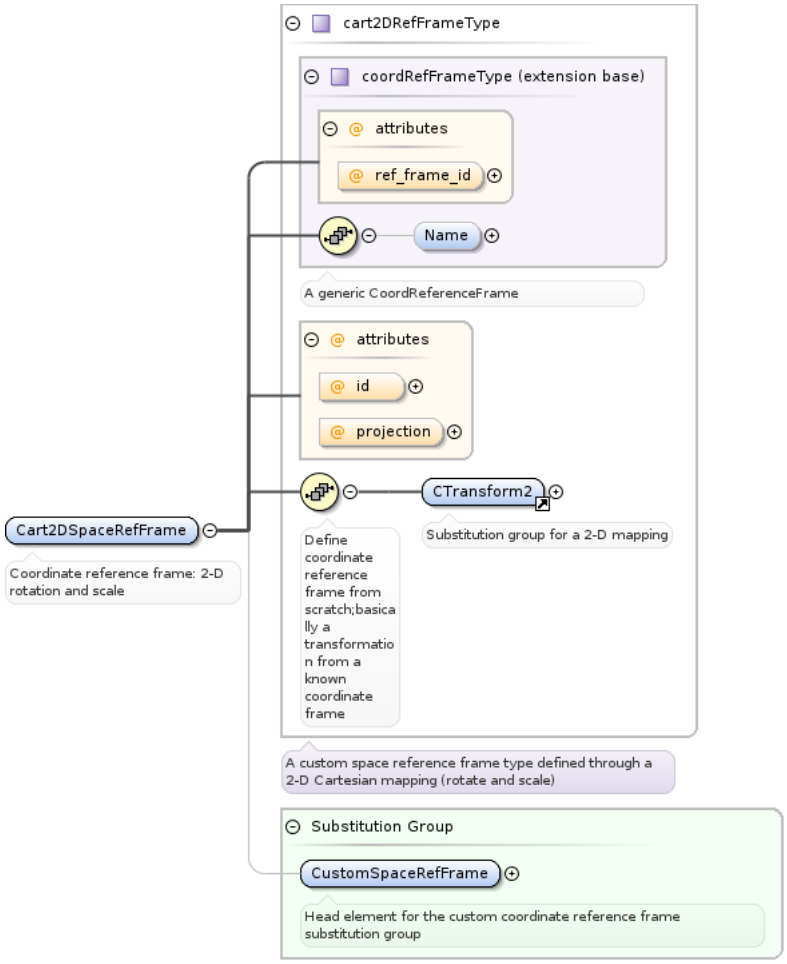
| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `Coordinate reference frame: 1-D scale` |
| Diagram |  |
| Type | cart1DRefFrameType |
| Type hierarchy | • coordRefFrameType<br>  • cart1DRefFrameType |
| Properties | content: `complex` |
| `Substitution Group Affiliation` | • CustomSpaceRefFrame |
| Model | Name{0,1} , Scale |
| Children | Name, Scale |
| `Instance` | `<Cart1DSpaceRefFrame id="" projection="" ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Name>{0,1}</Name>`<br>`  <Scale gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" Scale>`<br>`</Cart1DSpaceRefFrame>` |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **id** | xs:ID | | | optional |
| **projection** | projectionType | | | optional |
| **ref_frame_id** | xs:IDREF | | | optional |

| | |
|---|---|
| `Source` | `<xs:element name="Cart1DSpaceRefFrame" type="cart1DRefFrameType" substitutionGroup="CustomSpaceRefFrame">`<br>`  <xs:annotation>`<br>`  <xs:documentation>Coordinate reference frame: 1-D scale</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `Cart2DSpaceRefFrame`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `Coordinate reference frame: 2-D rotation and scale` |
| Diagram |  |
| Type | cart2DRefFrameType |
| Type hierarchy | • coordRefFrameType<br>  • cart2DRefFrameType |
| Properties | content: `complex` |
| `Substitution Group Affiliation` | • CustomSpaceRefFrame |
| Model | Name{0,1} , CTransform2 |
| Children | CTransform2, Name |
| `Instance` | `<Cart2DSpaceRefFrame id="" projection="" ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Name>{0,1}</Name>`<br>`  <CTransform2>{1,1}</CTransform2>`<br>`</Cart2DSpaceRefFrame>` |

Attributes

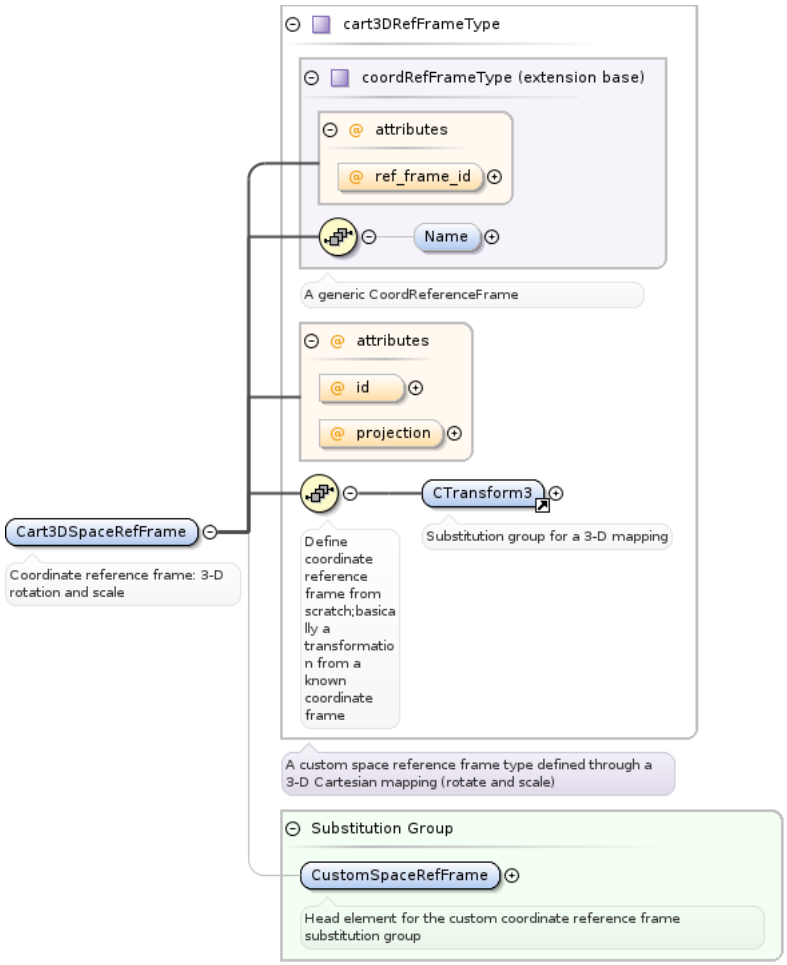
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **id** | xs:ID | | | optional |
| **projection** | projectionType | | | optional |
| **ref_frame_id** | xs:IDREF | | | optional |

`Source`

```
<xs:element name="Cart2DSpaceRefFrame" type="cart2DRefFrameType"
 substitutionGroup="CustomSpaceRefFrame">
  <xs:annotation>
    <xs:documentation>Coordinate reference frame: 2-D rotation and scale</
xs:documentation>
  </xs:annotation>
```

| | |
|---|---|
| | `</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `Cart3DSpaceRefFrame`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `Coordinate reference frame: 3-D rotation and scale` |
| Diagram |  |
| Type | cart3DRefFrameType |
| Type hierarchy | • coordRefFrameType<br>  • cart3DRefFrameType |
| Properties | content: `complex` |
| `Substitution Group Affiliation` | • CustomSpaceRefFrame |
| Model | Name{0,1} , CTransform3 |
| Children | CTransform3, Name |
| `Instance` | `<Cart3DSpaceRefFrame id="" projection="" ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Name>{0,1}</Name>`<br>`  <CTransform3>{1,1}</CTransform3>`<br>`</Cart3DSpaceRefFrame>` |

Attributes

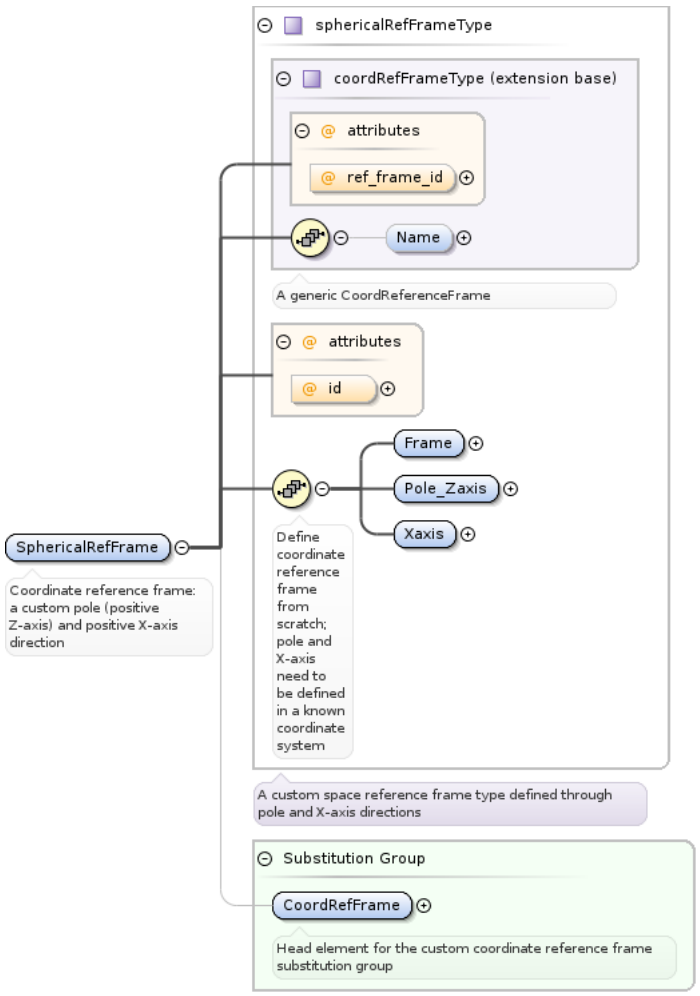
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **id** | xs:ID | | | optional |
| **projection** | projectionType | | | optional |
| **ref_frame_id** | xs:IDREF | | | optional |

`Source`

```
<xs:element name="Cart3DSpaceRefFrame" type="cart3DRefFrameType"
 substitutionGroup="CustomSpaceRefFrame">
```

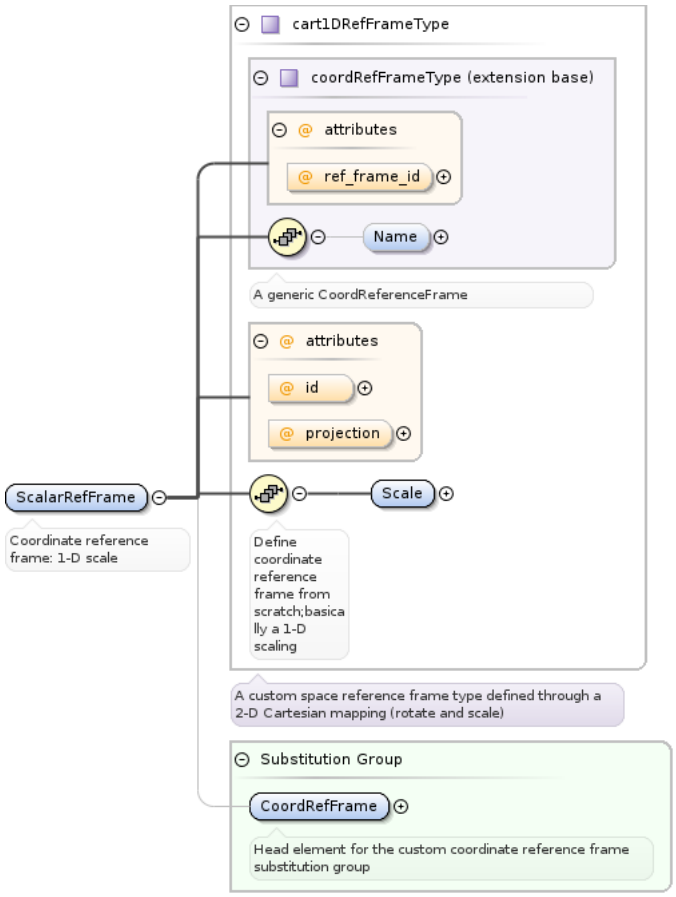
| | |
|---|---|
| | <xs:annotation><br><xs:documentation>Coordinate reference frame: 3-D rotation and scale</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element SphericalRefFrame

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Coordinate reference frame: a custom pole (positive Z-axis) and positive X-axis direction |
| Diagram |  |
| Type | sphericalRefFrameType |
| Type hierarchy | • coordRefFrameType<br>• sphericalRefFrameType |
| Properties | content: complex |
| Substitution Group Affiliation | • CoordRefFrame |
| Model | Name{0,1} , Frame , Pole_Zaxis , Xaxis |
| Children | Frame, Name, Pole_Zaxis, Xaxis |
| Instance | <SphericalRefFrame id="" ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd"><br><Name>{0,1}</Name><br><Frame>{1,1}</Frame><br><Pole_Zaxis coord_system_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simpl<br>Pole_Zaxis><br><Xaxis coord_system_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" uc<br>Xaxis><br></SphericalRefFrame> |

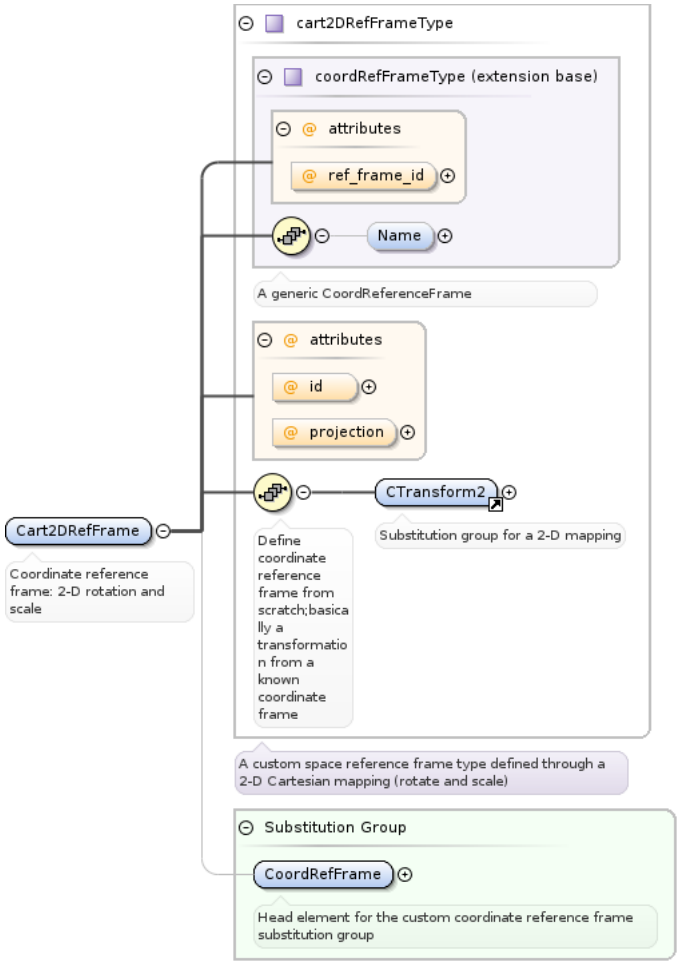
| | | | | | |
|---|---|---|---|---|---|
| Attributes | **QName** | **Type** | **Fixed** | **Default** | **Use** |
| | **id** | xs:ID | | | optional |
| | **ref_frame_id** | xs:IDREF | | | optional |
| Source | <xs:element name="SphericalRefFrame" type="sphericalRefFrameType" substitutionGroup="CoordRefFrame"> <xs:annotation> <xs:documentation>Coordinate reference frame: a custom pole (positive Z-axis) and positive X-axis direction</xs:documentation> </xs:annotation> </xs:element> | | | | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | | | | |

## Element ScalarRefFrame

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Coordinate reference frame: 1-D scale |
| Diagram |   |
| Type | cart1DRefFrameType |
| Type hierarchy | • coordRefFrameType<br>  • cart1DRefFrameType |
| Properties | content: complex |
| Substitution Group Affiliation | • CoordRefFrame |
| Model | Name{0,1} , Scale |
| Children | Name, Scale |
| Instance | <ScalarRefFrame id="" projection="" ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd"> <Name>{0,1}</Name> <Scale gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" Scale> </ScalarRefFrame> |

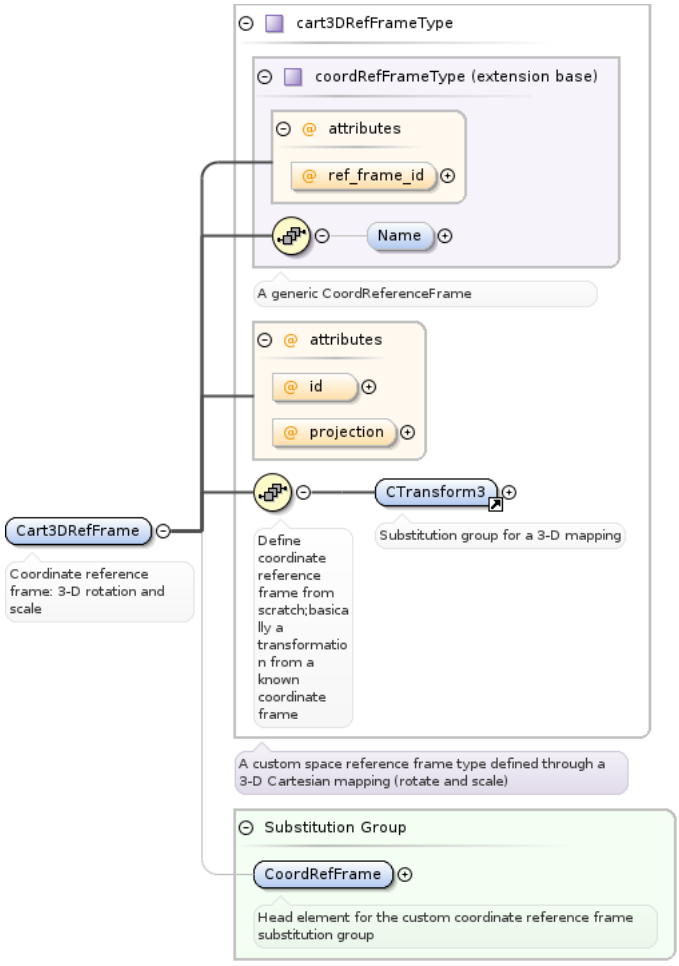
| | | | | | |
|---|---|---|---|---|---|
| Attributes | **QName** | **Type** | **Fixed** | **Default** | **Use** |
| | **id** | xs:ID | | | optional |
| | **projection** | projectionType | | | optional |
| | **ref_frame_id** | xs:IDREF | | | optional |
| `Source` | <xs:element name="ScalarRefFrame" type="cart1DRefFrameType" substitutionGroup="CoordRefFrame"> <xs:annotation> <xs:documentation>Coordinate reference frame: 1-D scale</xs:documentation> </xs:annotation> </xs:element> | | | | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | | | | |

## Element `Cart2DRefFrame`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `Coordinate reference frame: 2-D rotation and scale` |
| Diagram |   |
| Type | cart2DRefFrameType |
| Type hierarchy | • coordRefFrameType<br>  • cart2DRefFrameType |
| Properties | content: `complex` |
| `Substitution Group Affiliation` | • CoordRefFrame |
| Model | Name{0,1} , CTransform2 |
| Children | CTransform2, Name |
| `Instance` | <Cart2DRefFrame id="" projection="" ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd"> <Name>{0,1}</Name> |

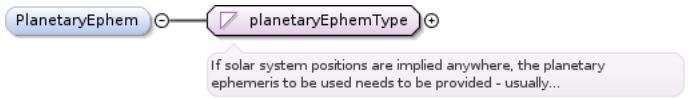
<table>
<tr><td></td><td><pre>  <CTransform2>{1,1}</CTransform2>
</Cart2DRefFrame></pre></td></tr>
<tr><td>Attributes</td><td>
<table>
<tr><th>QName</th><th>Type</th><th>Fixed</th><th>Default</th><th>Use</th></tr>
<tr><td>id</td><td>xs:ID</td><td></td><td></td><td>optional</td></tr>
<tr><td>projection</td><td>projectionType</td><td></td><td></td><td>optional</td></tr>
<tr><td>ref_frame_id</td><td>xs:IDREF</td><td></td><td></td><td>optional</td></tr>
</table>
</td></tr>
<tr><td>Source</td><td><pre><xs:element name="Cart2DRefFrame" type="cart2DRefFrameType"
 substitutionGroup="CoordRefFrame">
  <xs:annotation>
    <xs:documentation>Coordinate reference frame: 2-D rotation and scale</
xs:documentation>
  </xs:annotation>
</xs:element></pre></td></tr>
<tr><td>Schema location</td><td>http://www.ivoa.net/xml/STC/stc-v1.30.xsd</td></tr>
</table>

## Element Cart3DRefFrame

<table>
<tr><td>Namespace</td><td>http://www.ivoa.net/xml/STC/stc-v1.30.xsd</td></tr>
<tr><td>Annotations</td><td>Coordinate reference frame: 3-D rotation and scale</td></tr>
<tr><td>Diagram</td><td> 
</td></tr>
<tr><td>Type</td><td>cart3DRefFrameType</td></tr>
<tr><td>Type hierarchy</td><td>• coordRefFrameType<br>  • cart3DRefFrameType</td></tr>
<tr><td>Properties</td><td>content: complex</td></tr>
<tr><td>Substitution Group Affiliation</td><td>• CoordRefFrame</td></tr>
<tr><td>Model</td><td>Name{0,1} , CTransform3</td></tr>
<tr><td>Children</td><td>CTransform3, Name</td></tr>
</table>

| | |
|---|---|
| Instance | <Cart3DRefFrame id="" projection="" ref_frame_id="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <Name>{0,1}</Name><br>  <CTransform3>{1,1}</CTransform3><br></Cart3DRefFrame> |
| Attributes | **QName** / **Type** / **Fixed** / **Default** / **Use**<br>**id** / xs:ID / / / optional<br>**projection** / projectionType / / / optional<br>**ref_frame_id** / xs:IDREF / / / optional |
| Source | <xs:element name="Cart3DRefFrame" type="cart3DRefFrameType"<br> substitutionGroup="CoordRefFrame"><br>  <xs:annotation><br>  <xs:documentation>Coordinate reference frame: 3-D rotation and scale</xs:documentation><br>  </xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

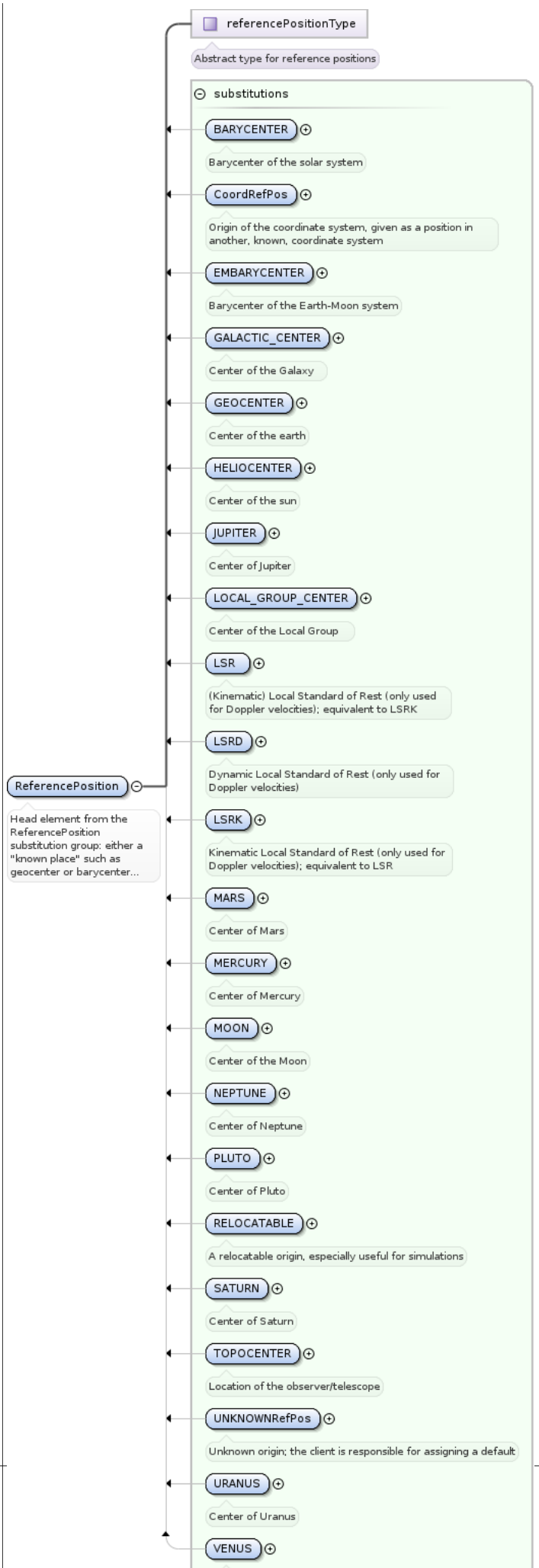
## Element stdRefPosType / PlanetaryEphem

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Diagram |  |
| Type | planetaryEphemType |
| Properties | content: simple<br>minOccurs: 0<br>nillable: true |
| Facets | enumeration JPL-DE200<br>enumeration JPL-DE405 |
| Source | <xs:element name="PlanetaryEphem" type="planetaryEphemType" nillable="true" minOccurs="0"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element ReferencePosition

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Head element from the ReferencePosition substitution group: either a "known place" such as geocenter or barycenter (RefPos), or a position defined in a known coordinate system (CoordOrigin) |

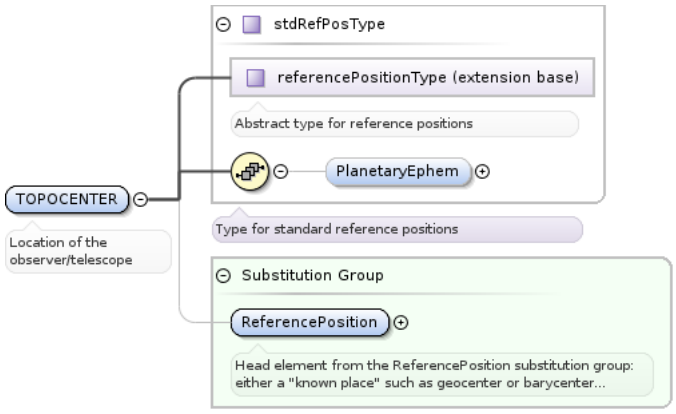
Diagram


referencePositionType
Abstract type for reference positions
substitutions
BARYCENTER
Barycenter of the solar system
CoordRefPos
Origin of the coordinate system, given as a position in another, known, coordinate system
EMBARYCENTER
Barycenter of the Earth-Moon system
GALACTIC_CENTER
Center of the Galaxy
GEOCENTER
Center of the earth
HELIOCENTER
Center of the sun
JUPITER
Center of Jupiter
LOCAL_GROUP_CENTER
Center of the Local Group
LSR
(Kinematic) Local Standard of Rest (only used for Doppler velocities); equivalent to LSRK
LSRD
Dynamic Local Standard of Rest (only used for Doppler velocities)
ReferencePosition
Head element from the ReferencePosition substitution group: either a "known place" such as geocenter or barycenter...
LSRK
Kinematic Local Standard of Rest (only used for Doppler velocities); equivalent to LSR
MARS
Center of Mars
MERCURY
Center of Mercury
MOON
Center of the Moon
NEPTUNE
Center of Neptune
PLUTO
Center of Pluto
RELOCATABLE
A relocatable origin, especially useful for simulations
SATURN
Center of Saturn
TOPOCENTER
Location of the observer/telescope
UNKNOWNRefPos
Unknown origin; the client is responsible for assigning a default
URANUS
Center of Uranus
VENUS

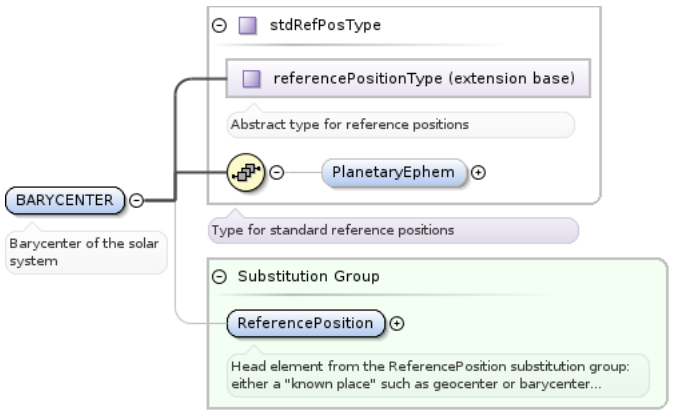
| | |
|---|---|
| Type | referencePositionType |
| Properties | content: complex<br>abstract: true |
| Substitution Group | • TOPOCENTER<br>• BARYCENTER<br>• HELIOCENTER<br>• GEOCENTER<br>• LSR<br>• LSRK<br>• LSRD<br>• GALACTIC_CENTER<br>• LOCAL_GROUP_CENTER<br>• MOON<br>• EMBARYCENTER<br>• MERCURY<br>• VENUS<br>• MARS<br>• JUPITER<br>• SATURN<br>• URANUS<br>• NEPTUNE<br>• PLUTO<br>• RELOCATABLE<br>• UNKNOWNRefPos<br>• CoordRefPos |
| Used by | Complex Types redshiftFrameType, spaceFrameType, spectralFrameType, timeFrameType |
| Source | <xs:element name="ReferencePosition" type="referencePositionType" abstract="true"><br><xs:annotation><br><xs:documentation>Head element from the ReferencePosition substitution group: either a "known place" such as geocenter or barycenter (RefPos), or a position defined in a known coordinate system (CoordOrigin)</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element TOPOCENTER

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Location of the observer/telescope |

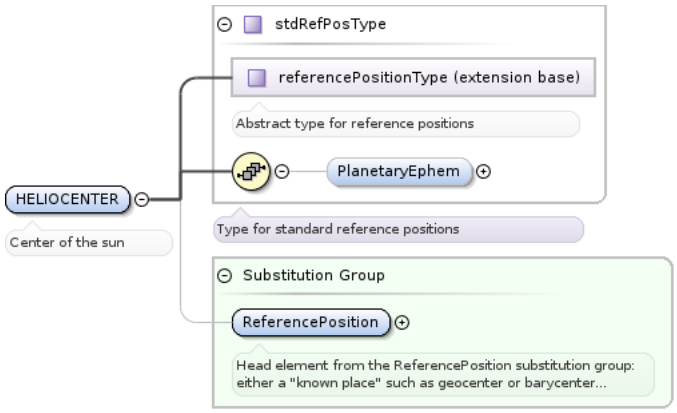
| | |
|---|---|
| Diagram |  |
| Type | stdRefPosType |
| Type hierarchy | • referencePositionType<br>  • stdRefPosType |
| Properties | content: complex |
| Substitution Group Affiliation | • ReferencePosition |
| Model | PlanetaryEphem{0,1} |
| Children | PlanetaryEphem |
| Instance | `<TOPOCENTER xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <PlanetaryEphem>{0,1}</PlanetaryEphem>`<br>`</TOPOCENTER>` |
| Source | `<xs:element name="TOPOCENTER" type="stdRefPosType" substitutionGroup="ReferencePosition">`<br>`  <xs:annotation>`<br>`  <xs:documentation>Location of the observer/telescope</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element BARYCENTER

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Barycenter of the solar system |
| Diagram |  |
| Type | stdRefPosType |
| Type hierarchy | • referencePositionType<br>  • stdRefPosType |
| Properties | content: complex |
| Substitution Group Affiliation | • ReferencePosition |
| Model | PlanetaryEphem{0,1} |
| Children | PlanetaryEphem |

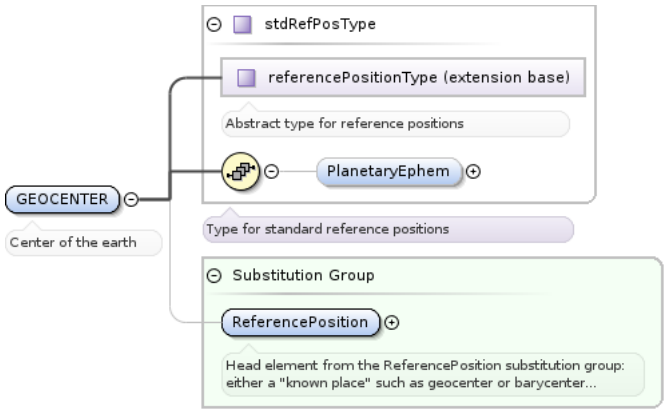
| | |
|---|---|
| Instance | <BARYCENTER xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <PlanetaryEphem>{0,1}</PlanetaryEphem><br></BARYCENTER> |
| Source | <xs:element name="BARYCENTER" type="stdRefPosType" substitutionGroup="ReferencePosition"><br>  <xs:annotation><br>  <xs:documentation>Barycenter of the solar system</xs:documentation><br>  </xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element HELIOCENTER

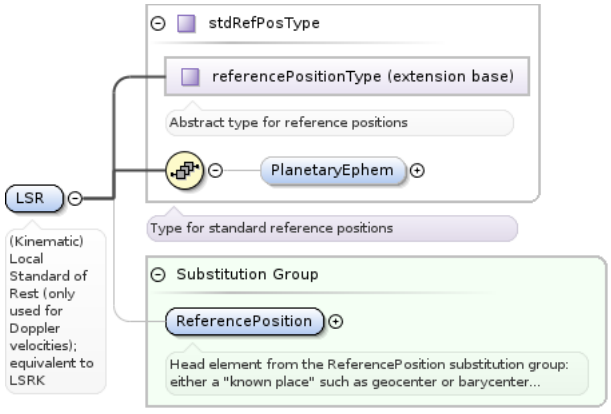
| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Center of the sun |
| Diagram |  |
| Type | stdRefPosType |
| Type hierarchy | • referencePositionType<br>  • stdRefPosType |
| Properties | content: complex |
| Substitution Group Affiliation | • ReferencePosition |
| Model | PlanetaryEphem{0,1} |
| Children | PlanetaryEphem |
| Instance | <HELIOCENTER xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <PlanetaryEphem>{0,1}</PlanetaryEphem><br></HELIOCENTER> |
| Source | <xs:element name="HELIOCENTER" type="stdRefPosType" substitutionGroup="ReferencePosition"><br>  <xs:annotation><br>  <xs:documentation>Center of the sun</xs:documentation><br>  </xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element GEOCENTER

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Center of the earth |

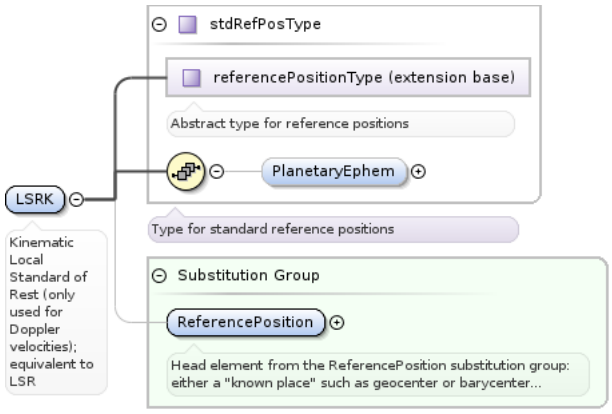
| | |
|---|---|
| Diagram |  |
| Type | stdRefPosType |
| Type hierarchy | • referencePositionType<br>  • stdRefPosType |
| Properties | content: complex |
| Substitution Group Affiliation | • ReferencePosition |
| Model | PlanetaryEphem{0,1} |
| Children | PlanetaryEphem |
| Instance | `<GEOCENTER xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <PlanetaryEphem>{0,1}</PlanetaryEphem>`<br>`</GEOCENTER>` |
| Source | `<xs:element name="GEOCENTER" type="stdRefPosType" substitutionGroup="ReferencePosition">`<br>`  <xs:annotation>`<br>`  <xs:documentation>Center of the earth</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element LSR

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | (Kinematic) Local Standard of Rest (only used for Doppler velocities); equivalent to LSRK |
| Diagram |  |
| Type | stdRefPosType |
| Type hierarchy | • referencePositionType<br>  • stdRefPosType |
| Properties | content: complex |
| Substitution Group Affiliation | • ReferencePosition |
| Model | PlanetaryEphem{0,1} |
| Children | PlanetaryEphem |

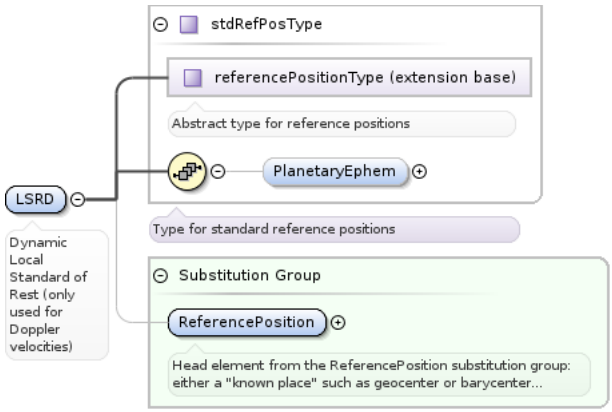
| | |
|---|---|
| Instance | <LSR xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <PlanetaryEphem>{0,1}</PlanetaryEphem><br></LSR> |
| Source | <xs:element name="LSR" type="stdRefPosType" substitutionGroup="ReferencePosition"><br>  <xs:annotation><br>  <xs:documentation>(Kinematic) Local Standard of Rest (only used for Doppler velocities); equivalent to LSRK</xs:documentation><br>  </xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element LSRK

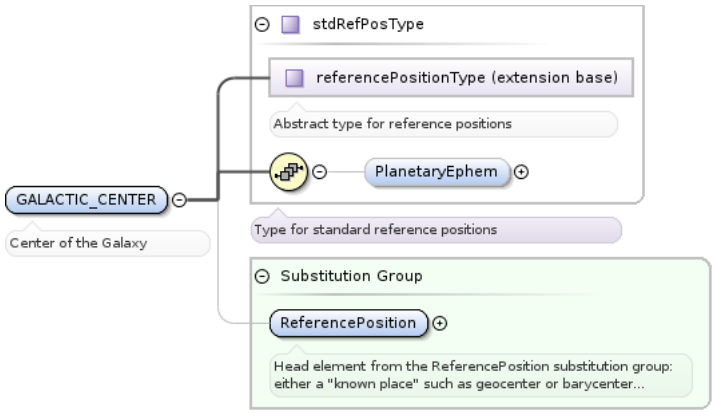
| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Kinematic Local Standard of Rest (only used for Doppler velocities); equivalent to LSR |
| Diagram |  |
| Type | stdRefPosType |
| Type hierarchy | • referencePositionType<br>  • stdRefPosType |
| Properties | content: complex |
| Substitution Group Affiliation | • ReferencePosition |
| Model | PlanetaryEphem{0,1} |
| Children | PlanetaryEphem |
| Instance | <LSRK xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <PlanetaryEphem>{0,1}</PlanetaryEphem><br></LSRK> |
| Source | <xs:element name="LSRK" type="stdRefPosType" substitutionGroup="ReferencePosition"><br>  <xs:annotation><br>  <xs:documentation>Kinematic Local Standard of Rest (only used for Doppler velocities); equivalent to LSR</xs:documentation><br>  </xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element LSRD

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Dynamic Local Standard of Rest (only used for Doppler velocities) |

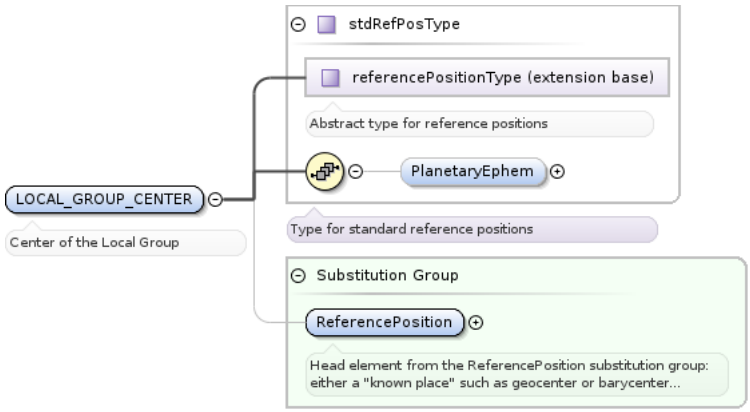
| | |
|---|---|
| Diagram |  |
| Type | stdRefPosType |
| Type hierarchy | • referencePositionType<br>• stdRefPosType |
| Properties | content: complex |
| Substitution Group Affiliation | • ReferencePosition |
| Model | PlanetaryEphem{0,1} |
| Children | PlanetaryEphem |
| Instance | <LSRD xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <PlanetaryEphem>{0,1}</PlanetaryEphem><br></LSRD> |
| Source | <xs:element name="LSRD" type="stdRefPosType" substitutionGroup="ReferencePosition"><br>  <xs:annotation><br>  <xs:documentation>Dynamic Local Standard of Rest (only used for Doppler velocities)</xs:documentation><br>  </xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element GALACTIC_CENTER

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Center of the Galaxy |
| Diagram |  |
| Type | stdRefPosType |
| Type hierarchy | • referencePositionType<br>• stdRefPosType |
| Properties | content: complex |
| Substitution Group Affiliation | • ReferencePosition |
| Model | PlanetaryEphem{0,1} |

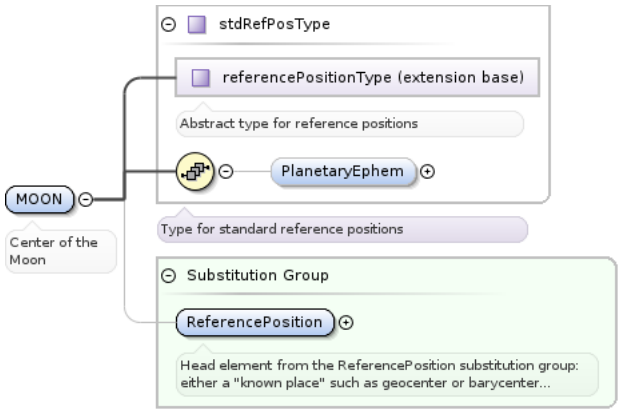
| | |
|---|---|
| Children | PlanetaryEphem |
| Instance | <GALACTIC_CENTER xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <PlanetaryEphem>{0,1}</PlanetaryEphem><br></GALACTIC_CENTER> |
| Source | <xs:element name="GALACTIC_CENTER" type="stdRefPosType"<br> substitutionGroup="ReferencePosition"><br>  <xs:annotation><br>  <xs:documentation>Center of the Galaxy</xs:documentation><br>  </xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element LOCAL_GROUP_CENTER

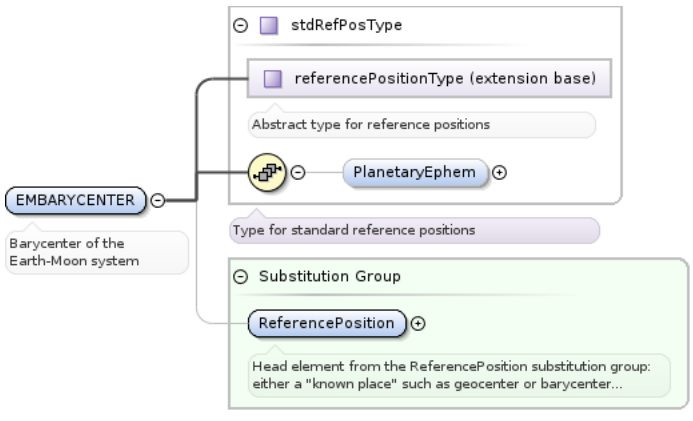
| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Center of the Local Group |
| Diagram |  |
| Type | stdRefPosType |
| Type hierarchy | • referencePositionType<br>  • stdRefPosType |
| Properties | content: complex |
| Substitution Group Affiliation | • ReferencePosition |
| Model | PlanetaryEphem{0,1} |
| Children | PlanetaryEphem |
| Instance | <LOCAL_GROUP_CENTER xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <PlanetaryEphem>{0,1}</PlanetaryEphem><br></LOCAL_GROUP_CENTER> |
| Source | <xs:element name="LOCAL_GROUP_CENTER" type="stdRefPosType"<br> substitutionGroup="ReferencePosition"><br>  <xs:annotation><br>  <xs:documentation>Center of the Local Group</xs:documentation><br>  </xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element MOON

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Center of the Moon |

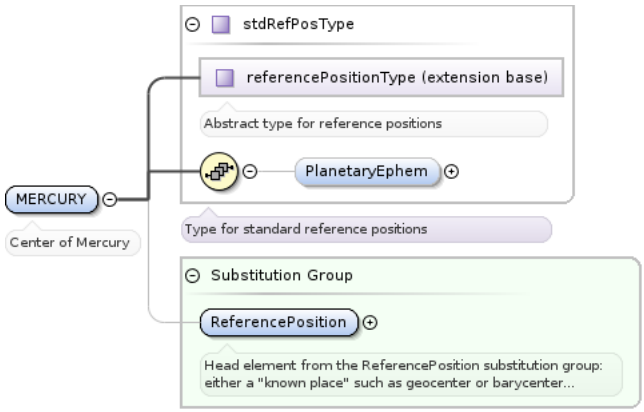
| | |
|---|---|
| Diagram |  |
| Type | stdRefPosType |
| Type hierarchy | • referencePositionType<br>  • stdRefPosType |
| Properties | content: complex |
| Substitution Group Affiliation | • ReferencePosition |
| Model | PlanetaryEphem{0,1} |
| Children | PlanetaryEphem |
| Instance | `<MOON xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <PlanetaryEphem>{0,1}</PlanetaryEphem>`<br>`</MOON>` |
| Source | `<xs:element name="MOON" type="stdRefPosType" substitutionGroup="ReferencePosition">`<br>`  <xs:annotation>`<br>`  <xs:documentation>Center of the Moon</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element EMBARYCENTER

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Barycenter of the Earth-Moon system |
| Diagram |  |
| Type | stdRefPosType |
| Type hierarchy | • referencePositionType<br>  • stdRefPosType |
| Properties | content: complex |
| Substitution Group Affiliation | • ReferencePosition |
| Model | PlanetaryEphem{0,1} |
| Children | PlanetaryEphem |

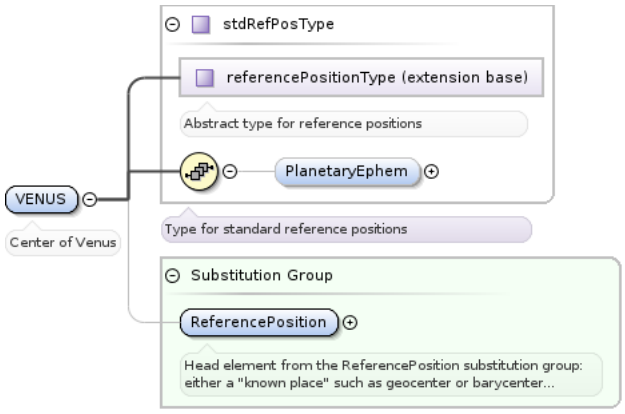
| | |
|---|---|
| Instance | <EMBARYCENTER xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <PlanetaryEphem>{0,1}</PlanetaryEphem><br></EMBARYCENTER> |
| Source | <xs:element name="EMBARYCENTER" type="stdRefPosType"<br> substitutionGroup="ReferencePosition"><br>  <xs:annotation><br>  <xs:documentation>Barycenter of the Earth-Moon system</xs:documentation><br>  </xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element MERCURY

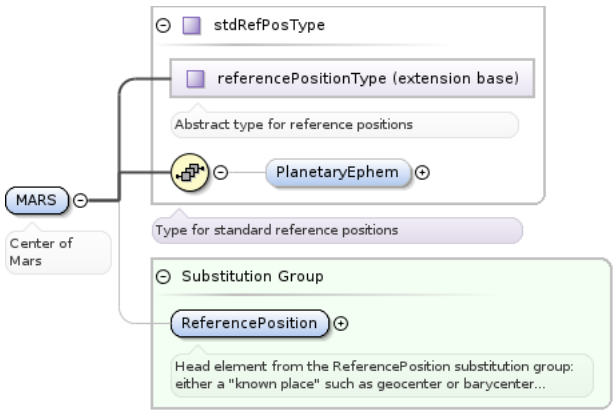
| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Center of Mercury |
| Diagram |  |
| Type | stdRefPosType |
| Type hierarchy | • referencePositionType<br>  • stdRefPosType |
| Properties | content: complex |
| Substitution Group Affiliation | • ReferencePosition |
| Model | PlanetaryEphem{0,1} |
| Children | PlanetaryEphem |
| Instance | <MERCURY xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <PlanetaryEphem>{0,1}</PlanetaryEphem><br></MERCURY> |
| Source | <xs:element name="MERCURY" type="stdRefPosType" substitutionGroup="ReferencePosition"><br>  <xs:annotation><br>  <xs:documentation>Center of Mercury</xs:documentation><br>  </xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element VENUS

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Center of Venus |

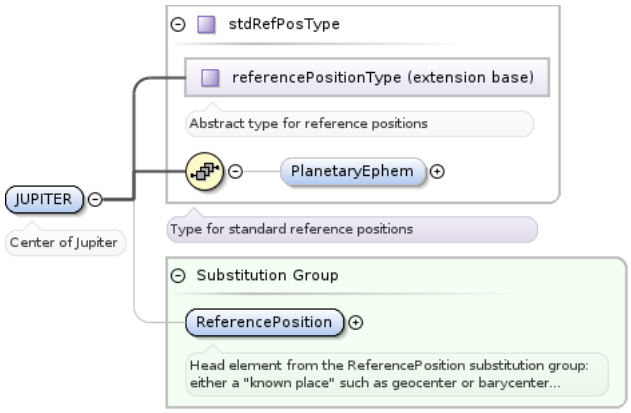
| | |
|---|---|
| Diagram |  |
| Type | stdRefPosType |
| Type hierarchy | • referencePositionType<br>• stdRefPosType |
| Properties | content: complex |
| Substitution Group Affiliation | • ReferencePosition |
| Model | PlanetaryEphem{0,1} |
| Children | PlanetaryEphem |
| Instance | `<VENUS xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <PlanetaryEphem>{0,1}</PlanetaryEphem>`<br>`</VENUS>` |
| Source | `<xs:element name="VENUS" type="stdRefPosType" substitutionGroup="ReferencePosition">`<br>`  <xs:annotation>`<br>`  <xs:documentation>Center of Venus</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element MARS

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Center of Mars |
| Diagram |  |
| Type | stdRefPosType |
| Type hierarchy | • referencePositionType<br>• stdRefPosType |
| Properties | content: complex |
| Substitution Group Affiliation | • ReferencePosition |
| Model | PlanetaryEphem{0,1} |
| Children | PlanetaryEphem |

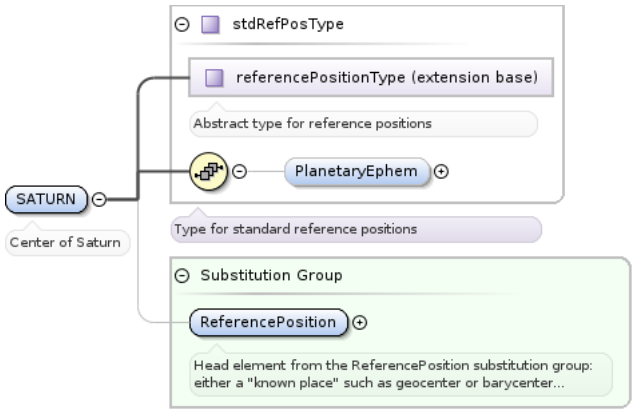
| | |
|---|---|
| Instance | <MARS xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <PlanetaryEphem>{0,1}</PlanetaryEphem><br></MARS> |
| Source | <xs:element name="MARS" type="stdRefPosType" substitutionGroup="ReferencePosition"><br>  <xs:annotation><br>  <xs:documentation>Center of Mars</xs:documentation><br>  </xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element JUPITER

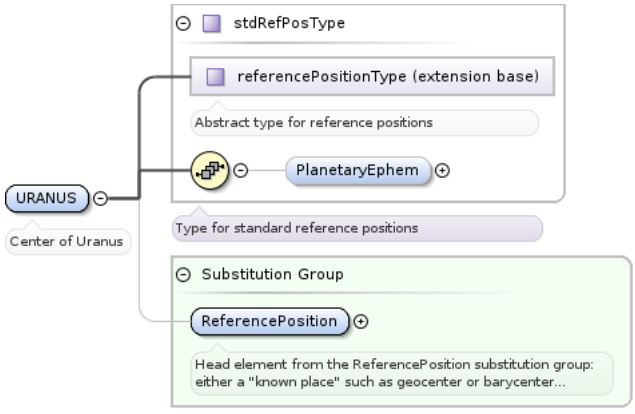
| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Center of Jupiter |
| Diagram |  |
| Type | stdRefPosType |
| Type hierarchy | • referencePositionType<br>  • stdRefPosType |
| Properties | content: complex |
| Substitution Group Affiliation | • ReferencePosition |
| Model | PlanetaryEphem{0,1} |
| Children | PlanetaryEphem |
| Instance | <JUPITER xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <PlanetaryEphem>{0,1}</PlanetaryEphem><br></JUPITER> |
| Source | <xs:element name="JUPITER" type="stdRefPosType" substitutionGroup="ReferencePosition"><br>  <xs:annotation><br>  <xs:documentation>Center of Jupiter</xs:documentation><br>  </xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element SATURN

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Center of Saturn |

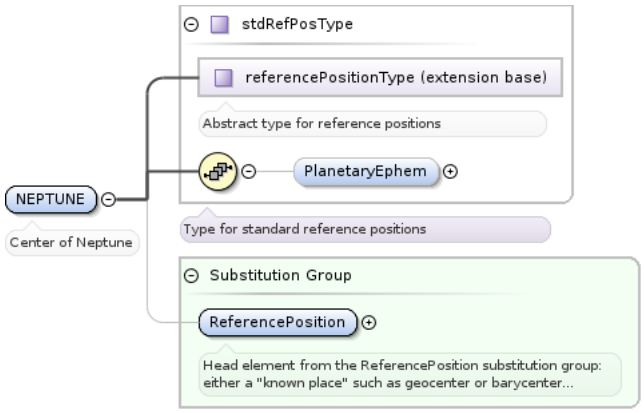
| | |
|---|---|
| Diagram |  |
| Type | stdRefPosType |
| Type hierarchy | • referencePositionType<br>  • stdRefPosType |
| Properties | content: complex |
| Substitution Group Affiliation | • ReferencePosition |
| Model | PlanetaryEphem{0,1} |
| Children | PlanetaryEphem |
| Instance | `<SATURN xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <PlanetaryEphem>{0,1}</PlanetaryEphem>`<br>`</SATURN>` |
| Source | `<xs:element name="SATURN" type="stdRefPosType" substitutionGroup="ReferencePosition">`<br>`  <xs:annotation>`<br>`  <xs:documentation>Center of Saturn</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element URANUS

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Center of Uranus |
| Diagram |  |
| Type | stdRefPosType |
| Type hierarchy | • referencePositionType<br>  • stdRefPosType |
| Properties | content: complex |
| Substitution Group Affiliation | • ReferencePosition |
| Model | PlanetaryEphem{0,1} |
| Children | PlanetaryEphem |

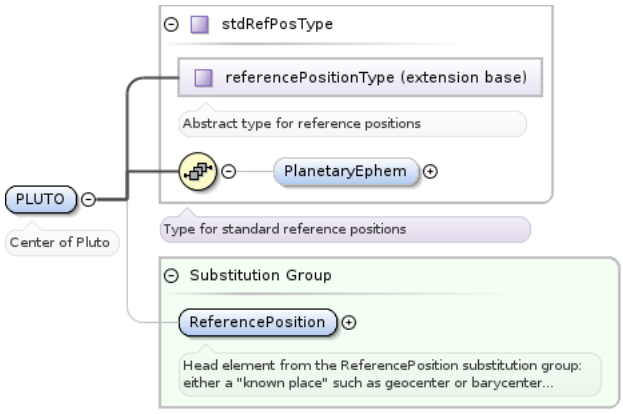
| | |
|---|---|
| Instance | <URANUS xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <PlanetaryEphem>{0,1}</PlanetaryEphem><br></URANUS> |
| Source | <xs:element name="URANUS" type="stdRefPosType" substitutionGroup="ReferencePosition"><br>  <xs:annotation><br>  <xs:documentation>Center of Uranus</xs:documentation><br>  </xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element NEPTUNE

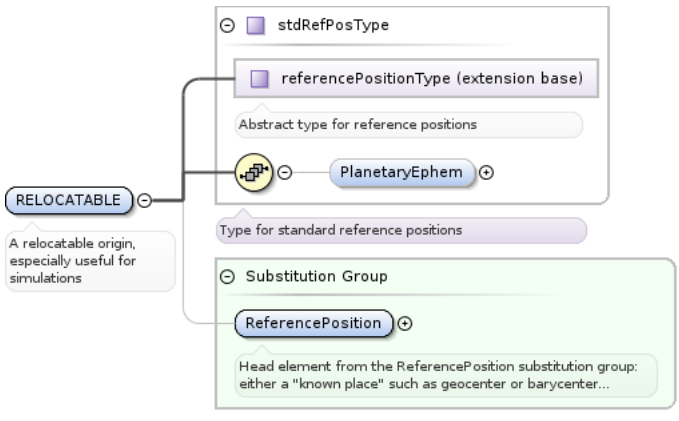
| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Center of Neptune |
| Diagram |  |
| Type | stdRefPosType |
| Type hierarchy | • referencePositionType<br>  • stdRefPosType |
| Properties | content: complex |
| Substitution Group Affiliation | • ReferencePosition |
| Model | PlanetaryEphem{0,1} |
| Children | PlanetaryEphem |
| Instance | <NEPTUNE xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <PlanetaryEphem>{0,1}</PlanetaryEphem><br></NEPTUNE> |
| Source | <xs:element name="NEPTUNE" type="stdRefPosType" substitutionGroup="ReferencePosition"><br>  <xs:annotation><br>  <xs:documentation>Center of Neptune</xs:documentation><br>  </xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element PLUTO

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Center of Pluto |

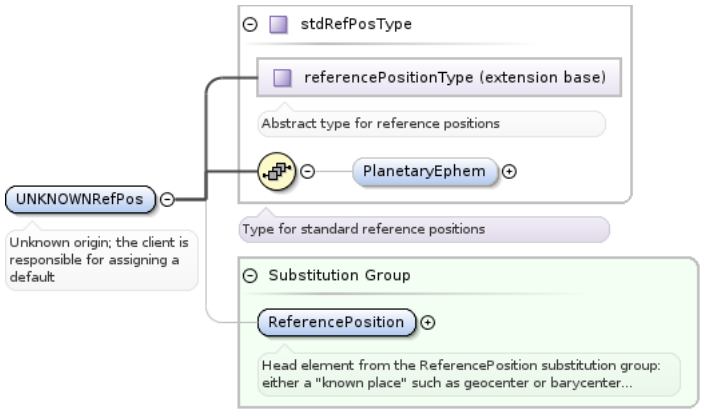
| | |
|---|---|
| Diagram |  |
| Type | stdRefPosType |
| Type hierarchy | • referencePositionType<br>  • stdRefPosType |
| Properties | content: complex |
| Substitution Group Affiliation | • ReferencePosition |
| Model | PlanetaryEphem{0,1} |
| Children | PlanetaryEphem |
| Instance | `<PLUTO xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <PlanetaryEphem>{0,1}</PlanetaryEphem>`<br>`</PLUTO>` |
| Source | `<xs:element name="PLUTO" type="stdRefPosType" substitutionGroup="ReferencePosition">`<br>`  <xs:annotation>`<br>`  <xs:documentation>Center of Pluto</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element RELOCATABLE

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | A relocatable origin, especially useful for simulations |
| Diagram |  |
| Type | stdRefPosType |
| Type hierarchy | • referencePositionType<br>  • stdRefPosType |
| Properties | content: complex |
| Substitution Group Affiliation | • ReferencePosition |
| Model | PlanetaryEphem{0,1} |
| Children | PlanetaryEphem |

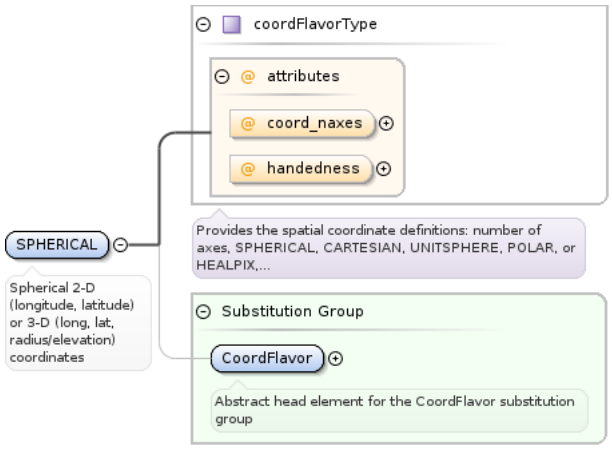
| | |
|---|---|
| Instance | <RELOCATABLE xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <PlanetaryEphem>{0,1}</PlanetaryEphem><br></RELOCATABLE> |
| Source | <xs:element name="RELOCATABLE" type="stdRefPosType" substitutionGroup="ReferencePosition"><br>  <xs:annotation><br>  <xs:documentation>A relocatable origin, especially useful for simulations</<br>xs:documentation><br>  </xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element UNKNOWNRefPos

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Unknown origin; the client is responsible for assigning a default |
| Diagram |  |
| Type | stdRefPosType |
| Type hierarchy | • referencePositionType<br>  • stdRefPosType |
| Properties | content: complex |
| Substitution Group Affiliation | • ReferencePosition |
| Model | PlanetaryEphem{0,1} |
| Children | PlanetaryEphem |
| Instance | <UNKNOWNRefPos xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <PlanetaryEphem>{0,1}</PlanetaryEphem><br></UNKNOWNRefPos> |
| Source | <xs:element name="UNKNOWNRefPos" type="stdRefPosType"<br> substitutionGroup="ReferencePosition"><br>  <xs:annotation><br>  <xs:documentation>Unknown origin; the client is responsible for assigning a default</<br>xs:documentation><br>  </xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element SPHERICAL

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Spherical 2-D (longitude, latitude) or 3-D (long, lat, radius/elevation) coordinates |

| | |
|---|---|
| Diagram |  |
| Type | coordFlavorType |
| Properties | content: complex |
| Substitution Group Affiliation | • CoordFlavor |

Attributes

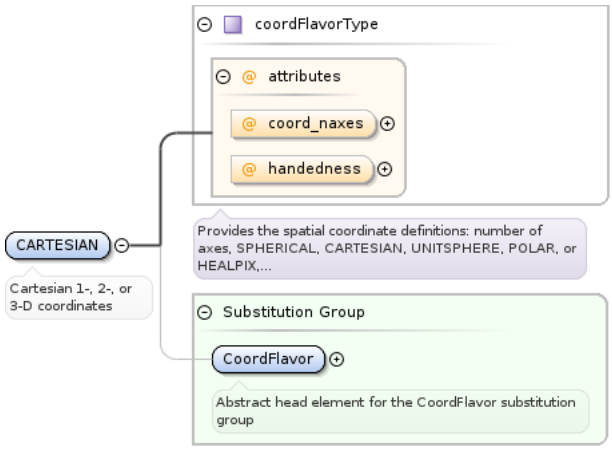
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **coord_naxes** | restriction of xs:integer | | 2 | optional |
| **handedness** | restriction of xs:string | | | optional |

Source

```
<xs:element name="SPHERICAL" type="coordFlavorType" substitutionGroup="CoordFlavor">
  <xs:annotation>
    <xs:documentation>Spherical 2-D (longitude, latitude) or 3-D (long, lat, radius/
elevation) coordinates</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element CARTESIAN

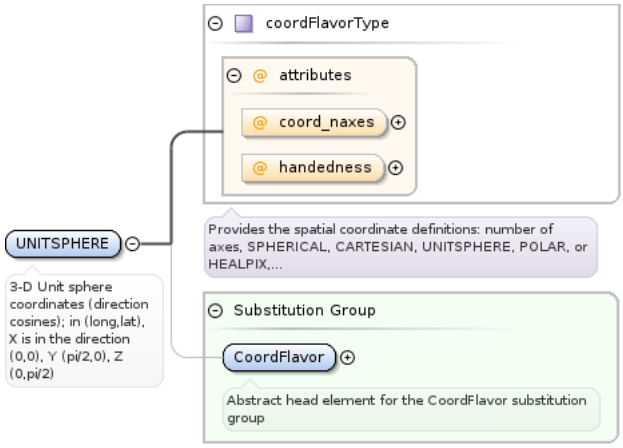
| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Cartesian 1-, 2-, or 3-D coordinates |
| Diagram |  |
| Type | coordFlavorType |
| Properties | content: complex |
| Substitution Group Affiliation | • CoordFlavor |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **coord_naxes** | restriction of xs:integer | | 2 | optional |
| **handedness** | restriction of xs:string | | | optional |

| | |
|---|---|
| Source | <xs:element name="CARTESIAN" type="coordFlavorType" substitutionGroup="CoordFlavor"><br>  <xs:annotation><br>  <xs:documentation>Cartesian 1-, 2-, or 3-D coordinates</xs:documentation><br>  </xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element UNITSPHERE

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | 3-D Unit sphere coordinates (direction cosines); in (long,lat), X is in the direction (0,0), Y (pi/2,0), Z (0,pi/2) |
| Diagram |  |
| Type | coordFlavorType |
| Properties | content: complex |
| Substitution Group Affiliation | • CoordFlavor |

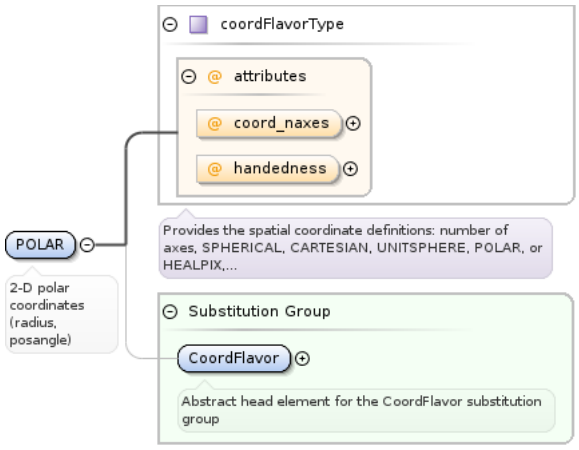
Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **coord_naxes** | restriction of xs:integer | | 2 | optional |
| **handedness** | restriction of xs:string | | | optional |

| | |
|---|---|
| Source | <xs:element name="UNITSPHERE" type="coordFlavorType" substitutionGroup="CoordFlavor"><br>  <xs:annotation><br>  <xs:documentation>3-D Unit sphere coordinates (direction cosines); in (long,lat), X is in the direction (0,0), Y (pi/2,0), Z (0,pi/2)</xs:documentation><br>  </xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element POLAR

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | 2-D polar coordinates (radius, posangle) |

| | |
|---|---|
| Diagram |  |
| Type | coordFlavorType |
| Properties | content: complex |
| Substitution Group Affiliation | • CoordFlavor |

Attributes

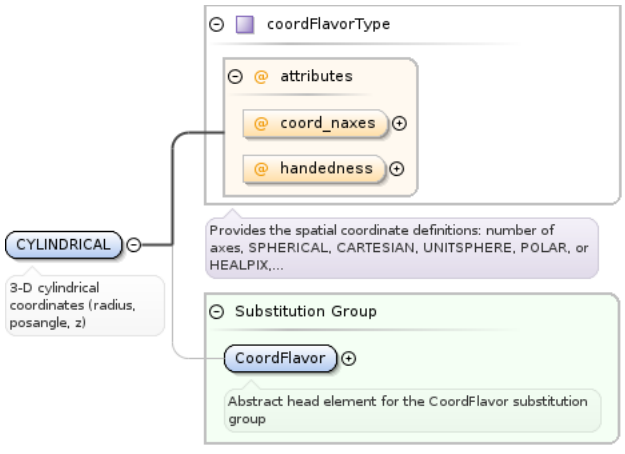
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **coord_naxes** | restriction of xs:integer | | 2 | optional |
| **handedness** | restriction of xs:string | | | optional |

Source

```
<xs:element name="POLAR" type="coordFlavorType" substitutionGroup="CoordFlavor">
  <xs:annotation>
    <xs:documentation>2-D polar coordinates (radius, posangle)</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element CYLINDRICAL

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | 3-D cylindrical coordinates (radius, posangle, z) |
| Diagram |  |
| Type | coordFlavorType |
| Properties | content: complex |
| Substitution Group Affiliation | • CoordFlavor |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **coord_naxes** | restriction of xs:integer | | 2 | optional |
| **handedness** | restriction of xs:string | | | optional |

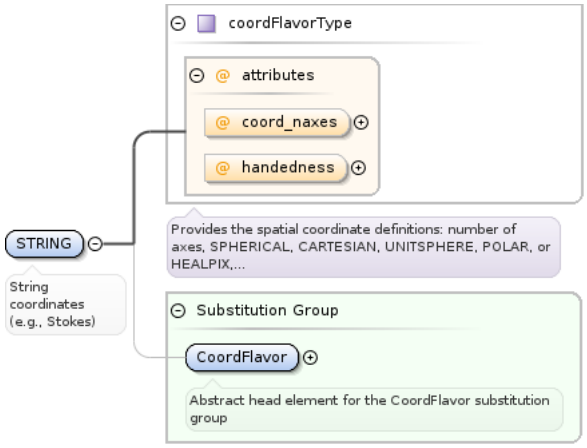
Source

```
<xs:element name="CYLINDRICAL" type="coordFlavorType" substitutionGroup="CoordFlavor">
```

```
  <xs:annotation>
    <xs:documentation>3-D cylindrical coordinates (radius, posangle, z)</xs:documentation>
  </xs:annotation>
</xs:element>
```

| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
|---|---|

## Element STRING

| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
|---|---|
| Annotations | String coordinates (e.g., Stokes) |
| Diagram |  |
| Type | coordFlavorType |
| Properties | content: complex |
| Substitution Group Affiliation | • CoordFlavor |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **coord_naxes** | restriction of xs:integer | | 2 | optional |
| **handedness** | restriction of xs:string | | | optional |

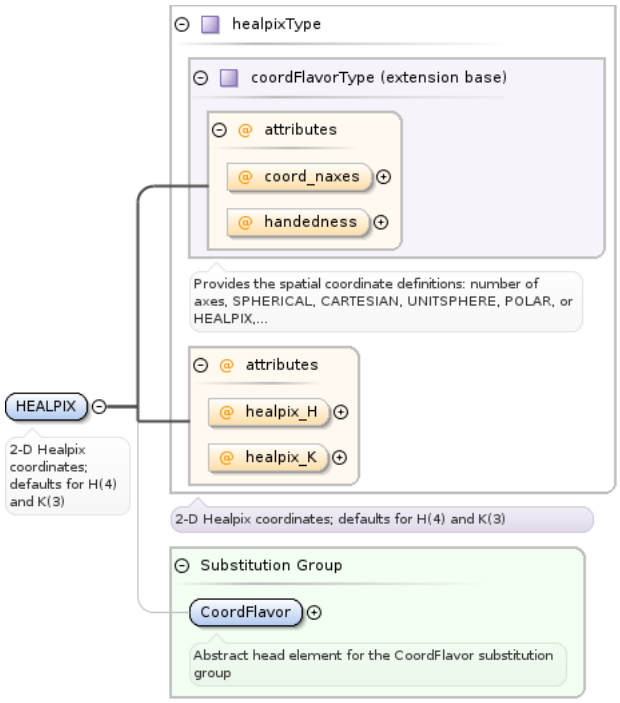
Source

```
<xs:element name="STRING" type="coordFlavorType" substitutionGroup="CoordFlavor">
  <xs:annotation>
    <xs:documentation>String coordinates (e.g., Stokes)</xs:documentation>
  </xs:annotation>
</xs:element>
```

| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
|---|---|

## Element HEALPIX

| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
|---|---|
| Annotations | 2-D Healpix coordinates; defaults for H(4) and K(3) |

| | |
|---|---|
| Diagram |  |
| Type | healpixType |
| Type hierarchy | • coordFlavorType<br>  • healpixType |
| Properties | content: `complex` |
| `Substitution Group Affiliation` | • CoordFlavor |

Attributes

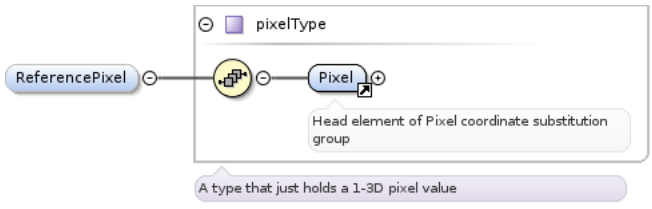
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **coord_naxes** | restriction of xs:integer | | 2 | optional |
| **handedness** | restriction of xs:string | | | optional |
| **healpix_H** | xs:integer | | 4 | optional |
| **healpix_K** | xs:integer | | 3 | optional |

`Source`

```
<xs:element name="HEALPIX" type="healpixType" substitutionGroup="CoordFlavor">
  <xs:annotation>
    <xs:documentation>2-D Healpix coordinates; defaults for H(4) and K(3)</
xs:documentation>
  </xs:annotation>
</xs:element>
```

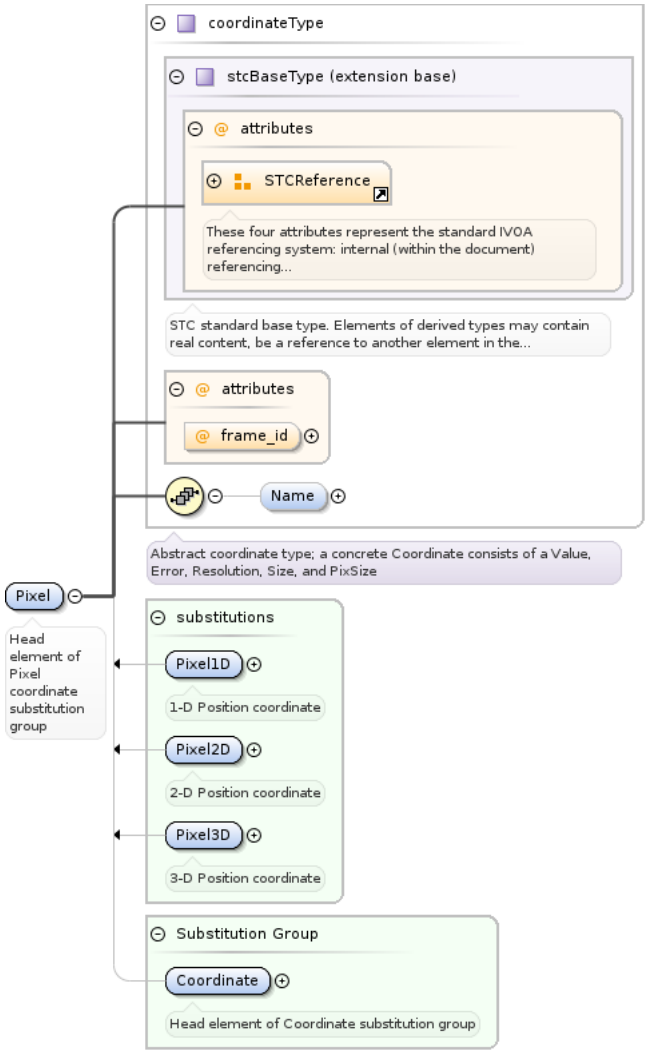
| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `pixelFrameType / ReferencePixel`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Diagram |  |
| Type | pixelType |
| Properties | content: `complex`<br>minOccurs: `0`<br>nillable: `true` |

| | |
|---|---|
| Model | Pixel |
| Children | Pixel |
| `Instance` | `<ReferencePixel xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Pixel frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="">{1`<br>`Pixel>`<br>`</ReferencePixel>` |
| `Source` | `<xs:element name="ReferencePixel" type="pixelType" nillable="true" minOccurs="0"/>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `Pixel`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `Head element of Pixel coordinate substitution group` |
| Diagram |  |
| Type | coordinateType |
| Type hierarchy | • stcBaseType<br>  • coordinateType |
| Properties | content: `complex`<br>nillable: `true` |
| `Substitution Group` | • Pixel1D<br>• Pixel2D<br>• Pixel3D |
| `Substitution Group Affiliation` | • Coordinate |

| | |
|---|---|
| Used by | Complex Types pixelCoordsType, pixelType |
| Model | Name{0,1} |
| Children | Name |
| Instance | `<Pixel frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" xmln`<br>`www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Name>{0,1}</Name>`<br>`</Pixel>` |

Attributes

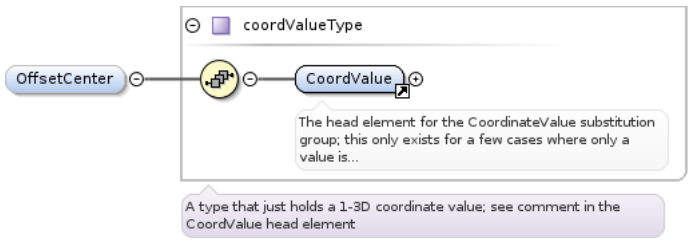
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **frame_id** | xs:IDREF | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:element name="Pixel" type="coordinateType" substitutionGroup="Coordinate"
 nillable="true">
  <xs:annotation>
    <xs:documentation>Head element of Pixel coordinate substitution group</
xs:documentation>
  </xs:annotation>
</xs:element>
```

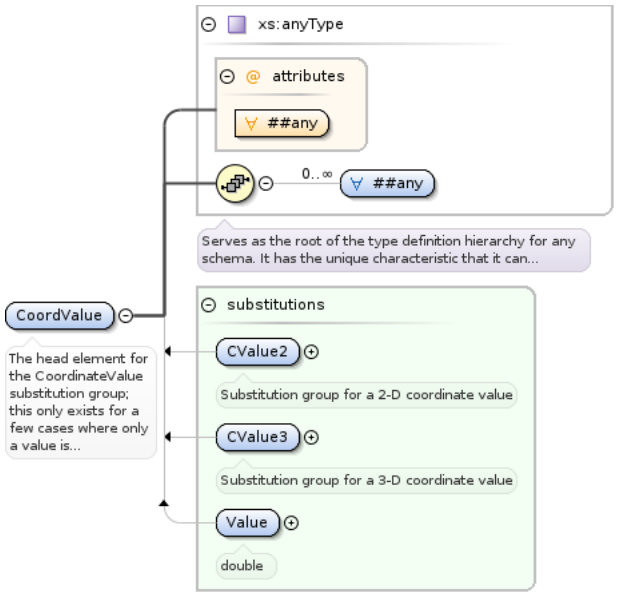
| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element spaceFrameType / OffsetCenter

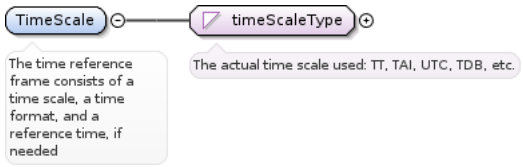
| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Diagram |  |
| Type | coordValueType |
| Properties | content: complex<br>minOccurs: 0 |
| Model | CoordValue |
| Children | CoordValue |
| Instance | `<OffsetCenter xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <CoordValue>{1,1}</CoordValue>`<br>`</OffsetCenter>` |
| Source | `<xs:element name="OffsetCenter" type="coordValueType" minOccurs="0"/>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element CoordValue

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The head element for the CoordinateValue substitution group; this only exists for a few cases where only a value is needed (as in some Region elements) |

| | |
|---|---|
| Diagram |  |
| Properties | abstract: `true` |
| `Substitution Group` | • Value<br>• Value2<br>• Curve2<br>• Value3<br>• Curve3 |
| Used by | Complex Type coordValueType |
| `Source` | `<xs:element name="CoordValue" type="xs:anyType" abstract="true">`<br>`  <xs:annotation>`<br>`  <xs:documentation>The head element for the CoordinateValue substitution group; this only exists for a few cases where only a value is needed (as in some Region elements)</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

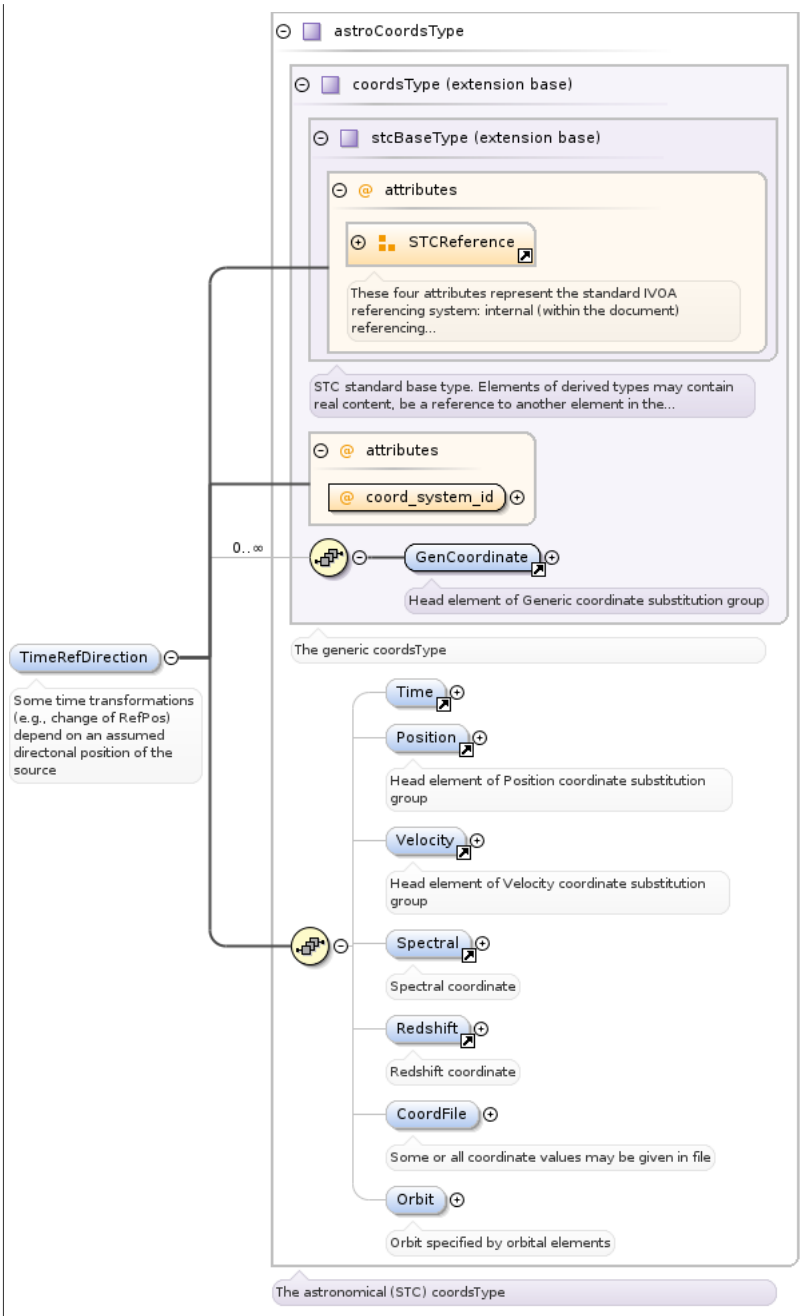
## Element `timeFrameType / TimeScale`

| | | | |
|---|---|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | | |
| Annotations | `The time reference frame consists of a time scale, a time format, and a reference time, if needed` | | |
| Diagram |  | | |
| Type | timeScaleType | | |
| Properties | content: | `simple` | |
| | default: | `TT` | |
| | nillable: | `true` | |
| Facets | enumeration | `TT` | `Terrestrial Time; the basis for ephemerides` |
| | enumeration | `TDT` | `Obsolete synonym for TT` |
| | enumeration | `ET` | `Ephemeris Time; predecessor of, and continuous with, TT` |
| | enumeration | `TDB` | `Barycentric Dynamic Time:the independent variable in planetay ephemerides; time at` |

| | | | |
|---|---|---|---|
| | | | the solar system barycenter synchronous with TT on an annual basis; sometimes called TEB |
| | enumeration | TEB | Barycentric Ephemeris Time: time at the solar system barycenter synchronous with TT on an annual basis; a deprecated synonym of TDB. |
| | enumeration | TCG | Terrestrial Coordinate Time |
| | enumeration | TCB | Barycentric Coordinate Time; runs slower than TDB but is consistent with physical constants |
| | enumeration | TAI | International Atomic Time; runs 32.184 s behind TT |
| | enumeration | IAT | Synonym for TAI |
| | enumeration | UTC | Coordinated Universal Time; currently (2006) runs 33 leapseconds behind TAI |
| | enumeration | GPS | Global Positioning System's time scale; runs 19 s behind TAI, 51.184 s behind TT. |
| | enumeration | LST | Local Siderial Time; only for ground-based observations; note that the second is shorter |
| | enumeration | GMST | Greenwich Mean Siderial Time; only for ground-based observations; note that the second is shorter |
| | enumeration | LOCAL | Only to be used for simulations in conjunction with a relocatable spatial frame |
| Source | <xs:element name="TimeScale" type="timeScaleType" default="TT" nillable="true"><br><xs:annotation><br><xs:documentation>The time reference frame consists of a time scale, a time format, and a reference time, if needed</xs:documentation><br></xs:annotation><br></xs:element> | | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | | |

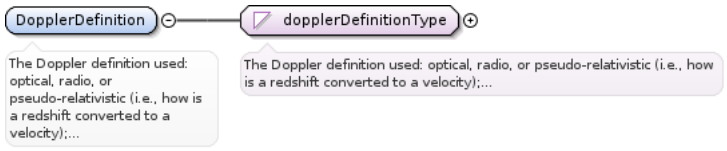
## Element timeFrameType / TimeRefDirection

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Some time transformations (e.g., change of RefPos) depend on an assumed directonal position of the source |

| | |
|---|---|
| Diagram |  |
| Type | astroCoordsType |
| Type hierarchy | • stcBaseType<br>  • coordsType<br>  • astroCoordsType |
| Properties | content: complex<br>minOccurs: 0 |
| Model | GenCoordinate , Time{0,1} , Position{0,1} , Velocity{0,1} , Spectral{0,1} , Redshift{0,1} , CoordFile{0,1} , Orbit{0,1} |
| Children | CoordFile, GenCoordinate, Orbit, Position, Redshift, Spectral, Time, Velocity |
| Instance | <TimeRefDirection coord_system_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="s<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <GenCoordinate frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" u<br>GenCoordinate><br>  <Time coord_system_id="" frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type=<br>Time><br>  <Position frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd=""<br>Position> |

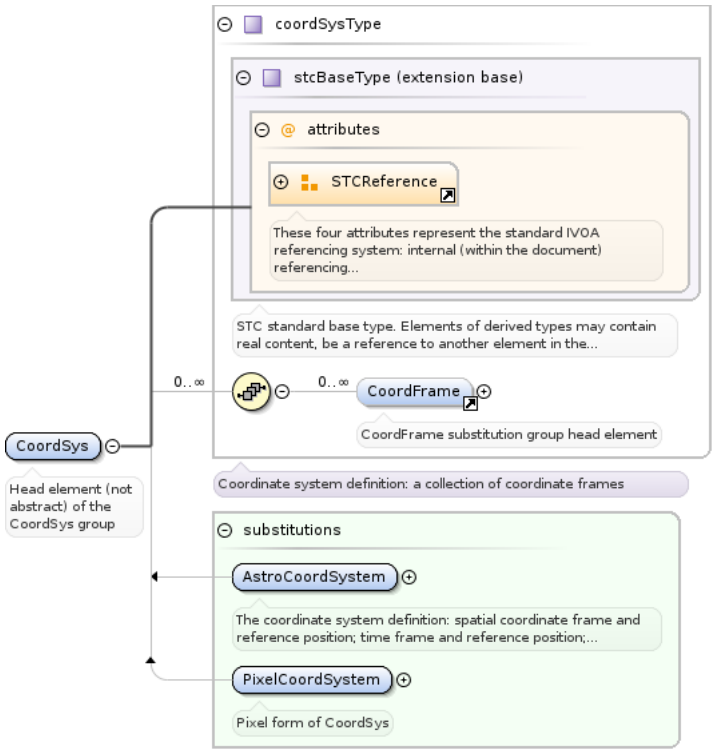
<table>
<tr><td></td><td><pre>  <Velocity frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd=""
Velocity>
  <Spectral coord_system_id="" frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:t
Spectral>
  <Redshift coord_system_id="" frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:t
Redshift>
  <CoordFile frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="
CoordFile>
  <Orbit frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="">{0
Orbit>
</TimeRefDirection></pre></td></tr>
<tr><td>Attributes</td><td>
<table>
<tr><th>QName</th><th>Type</th><th>Fixed</th><th>Default</th><th>Use</th></tr>
<tr><td>IDREF_type</td><td>xs:string</td><td></td><td></td><td>optional</td></tr>
<tr><td>ID_type</td><td>xs:string</td><td></td><td></td><td>optional</td></tr>
<tr><td>coord_system_id</td><td>xs:IDREF</td><td></td><td></td><td>required</td></tr>
<tr><td>id</td><td>xs:ID</td><td></td><td></td><td>optional</td></tr>
<tr><td>idref</td><td>xs:IDREF</td><td></td><td></td><td>optional</td></tr>
<tr><td>ucd</td><td>xs:string</td><td></td><td></td><td>optional</td></tr>
<tr><td>xlink:href</td><td>xs:anyURI</td><td></td><td></td><td>optional</td></tr>
<tr><td>xlink:type</td><td>restriction of xs:NMTOKEN</td><td></td><td>simple</td><td>optional</td></tr>
</table>
</td></tr>
<tr><td>Source</td><td><pre><xs:element name="TimeRefDirection" type="astroCoordsType" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Some time transformations (e.g., change of RefPos) depend on an
 assumed directonal position of the source</xs:documentation>
  </xs:annotation>
</xs:element></pre></td></tr>
<tr><td>Schema location</td><td>http://www.ivoa.net/xml/STC/stc-v1.30.xsd</td></tr>
</table>

## Element redshiftFrameType / DopplerDefinition

<table>
<tr><td>Namespace</td><td>http://www.ivoa.net/xml/STC/stc-v1.30.xsd</td></tr>
<tr><td>Annotations</td><td>The Doppler definition used: optical, radio, or pseudo-relativistic (i.e., how is a
 redshift converted to a velocity); the most common is optical, except when the reference
 is LSR (usually radio)</td></tr>
<tr><td>Diagram</td><td> 
</td></tr>
<tr><td>Type</td><td>dopplerDefinitionType</td></tr>
<tr><td>Properties</td><td>
<table>
<tr><td>content:</td><td>simple</td></tr>
<tr><td>nillable:</td><td>true</td></tr>
</table>
</td></tr>
<tr><td>Facets</td><td>
<table>
<tr><td>enumeration</td><td>OPTICAL</td></tr>
<tr><td>enumeration</td><td>RADIO</td></tr>
<tr><td>enumeration</td><td>RELATIVISTIC</td></tr>
</table>
</td></tr>
<tr><td>Source</td><td><pre><xs:element name="DopplerDefinition" type="dopplerDefinitionType" nillable="true">
  <xs:annotation>
    <xs:documentation>The Doppler definition used: optical, radio, or pseudo-relativistic
 (i.e., how is a redshift converted to a velocity); the most common is optical, except
 when the reference is LSR (usually radio)</xs:documentation>
  </xs:annotation>
</xs:element></pre></td></tr>
<tr><td>Schema location</td><td>http://www.ivoa.net/xml/STC/stc-v1.30.xsd</td></tr>
</table>

## Element CoordSys

<table>
<tr><td>Namespace</td><td>http://www.ivoa.net/xml/STC/stc-v1.30.xsd</td></tr>
<tr><td>Annotations</td><td>Head element (not abstract) of the CoordSys group</td></tr>
</table>

| | |
|---|---|
| Diagram |  |
| Type | coordSysType |
| Type hierarchy | • stcBaseType<br>  • coordSysType |
| Properties | content: complex<br>nillable: true |
| Substitution Group | • AstroCoordSystem<br>• PixelCoordSystem |
| Used by | Complex Type stcDescriptionType |
| Model | CoordFrame* |
| Children | CoordFrame |
| Instance | <CoordSys xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <CoordFrame xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="">{0,unboun<br>CoordFrame><br></CoordSys> |

Attributes

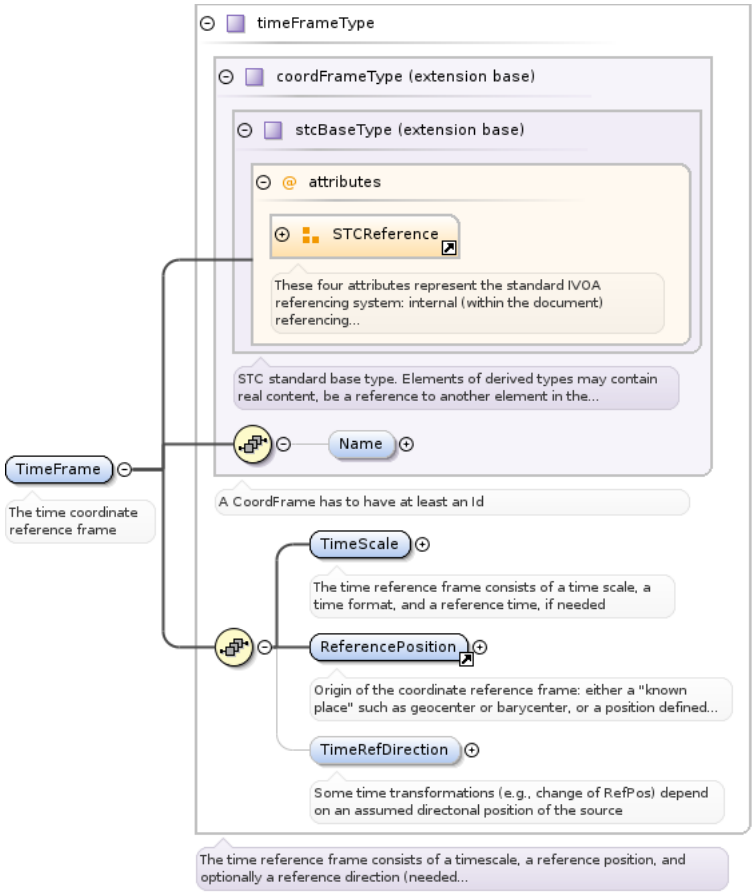
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:element name="CoordSys" type="coordSysType" nillable="true">
  <xs:annotation>
    <xs:documentation>Head element (not abstract) of the CoordSys group</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `TimeFrame`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `The time coordinate reference frame` |
| Diagram |  |
| Type | timeFrameType |
| Type hierarchy | • stcBaseType<br>  • coordFrameType<br>  • timeFrameType |
| Properties | content: `complex`<br>nillable: `true` |
| Used by | Complex Type astroCoordSystemType |
| Model | Name{0,1} , TimeScale , ReferencePosition , TimeRefDirection{0,1} |
| Children | Name, ReferencePosition, TimeRefDirection, TimeScale |
| `Instance` | `<TimeFrame xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Name>{0,1}</Name>`<br>`  <TimeScale>{1,1}</TimeScale>`<br>`  <ReferencePosition>{1,1}</ReferencePosition>`<br>`  <TimeRefDirection coord_system_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" />`<br>`</TimeFrame>` |

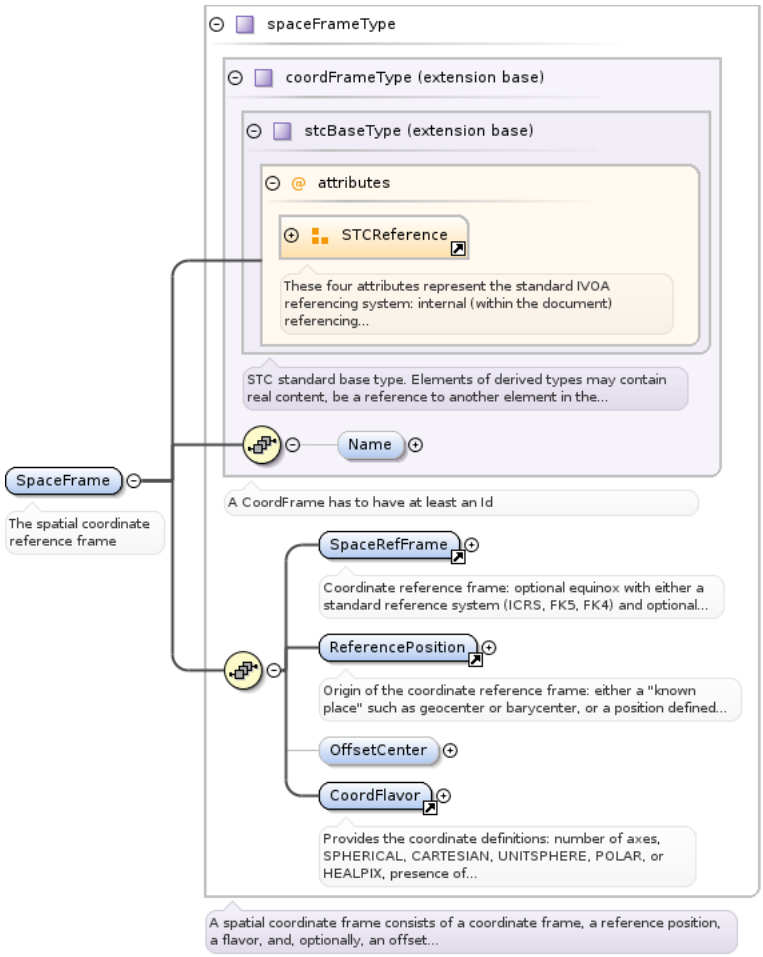
Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |

| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

| | |
|---|---|
| Source | `<xs:element name="TimeFrame" type="timeFrameType" nillable="true">`<br>`  <xs:annotation>`<br>`  <xs:documentation>The time coordinate reference frame</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element SpaceFrame

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The spatial coordinate reference frame |
| Diagram |  |
| Type | spaceFrameType |
| Type hierarchy | • stcBaseType<br>  • coordFrameType<br>  • spaceFrameType |
| Properties | content: complex<br>nillable: true |
| Used by | Complex Type astroCoordSystemType |
| Model | Name{0,1} , SpaceRefFrame , ReferencePosition , OffsetCenter{0,1} , CoordFlavor |
| Children | CoordFlavor, Name, OffsetCenter, ReferencePosition, SpaceRefFrame |
| Instance | `<SpaceFrame xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">` |

```
  <Name>{0,1}</Name>
  <SpaceRefFrame ref_frame_id="">{1,1}</SpaceRefFrame>
  <ReferencePosition>{1,1}</ReferencePosition>
  <OffsetCenter>{0,1}</OffsetCenter>
  <CoordFlavor coord_naxes="2" handedness="">{1,1}</CoordFlavor>
</SpaceFrame>
```

Attributes

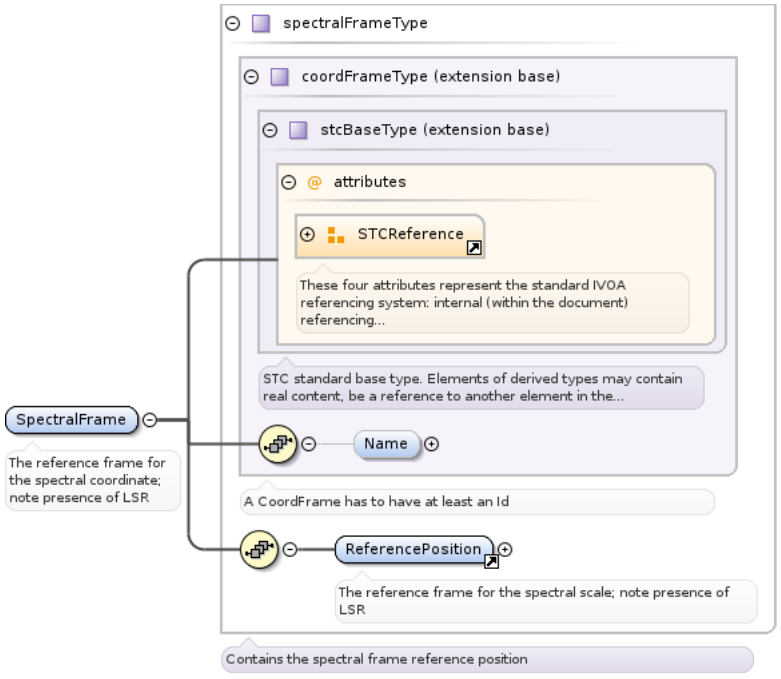
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:element name="SpaceFrame" type="spaceFrameType" nillable="true">
  <xs:annotation>
    <xs:documentation>The spatial coordinate reference frame</xs:documentation>
  </xs:annotation>
</xs:element>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Element `SpectralFrame`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The reference frame for the spectral coordinate; note presence of LSR |
| Diagram |  |
| Type | spectralFrameType |
| Type hierarchy | • stcBaseType<br>  • coordFrameType<br>  • spectralFrameType |
| Properties | content: complex<br>nillable: true |
| Used by | Complex Type: astroCoordSystemType |
| Model | Name{0,1} , ReferencePosition |
| Children | Name, ReferencePosition |

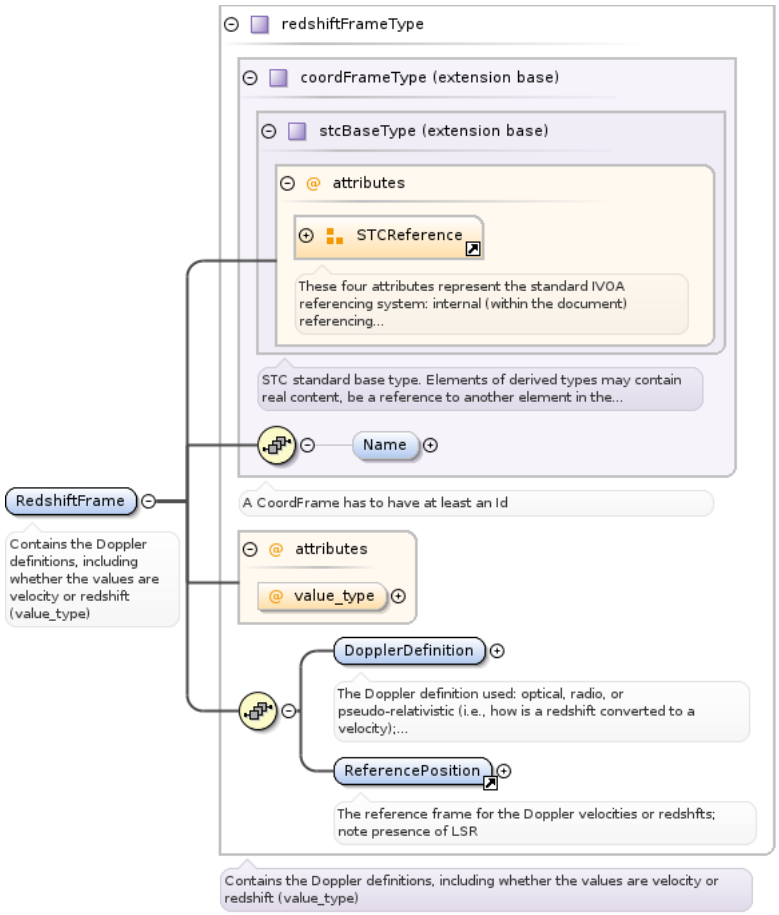
| | |
|---|---|
| Instance | <SpectralFrame xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" xmlns="h<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <Name>{0,1}</Name><br>  <ReferencePosition>{1,1}</ReferencePosition><br></SpectralFrame> |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

| | |
|---|---|
| Source | <xs:element name="SpectralFrame" type="spectralFrameType" nillable="true"><br>  <xs:annotation><br>  <xs:documentation>The reference frame for the spectral coordinate; note presence of<br> LSR</xs:documentation><br>  </xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element RedshiftFrame

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Contains the Doppler definitions, including whether the values are velocity or redshift (value_type) |
| Diagram |  |
| Type | redshiftFrameType |
| Type hierarchy | • stcBaseType<br>  • coordFrameType |

| | |
|---|---|
| | • redshiftFrameType |
| Properties | content: complex<br>nillable: true |
| Used by | Complex Type astroCoordSystemType |
| Model | Name{0,1} , DopplerDefinition , ReferencePosition |
| Children | DopplerDefinition, Name, ReferencePosition |
| Instance | <RedshiftFrame xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" value_ty<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br><Name>{0,1}</Name><br><DopplerDefinition>{1,1}</DopplerDefinition><br><ReferencePosition>{1,1}</ReferencePosition><br></RedshiftFrame> |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **value_type** | restriction of xs:string | | VELOCITY | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

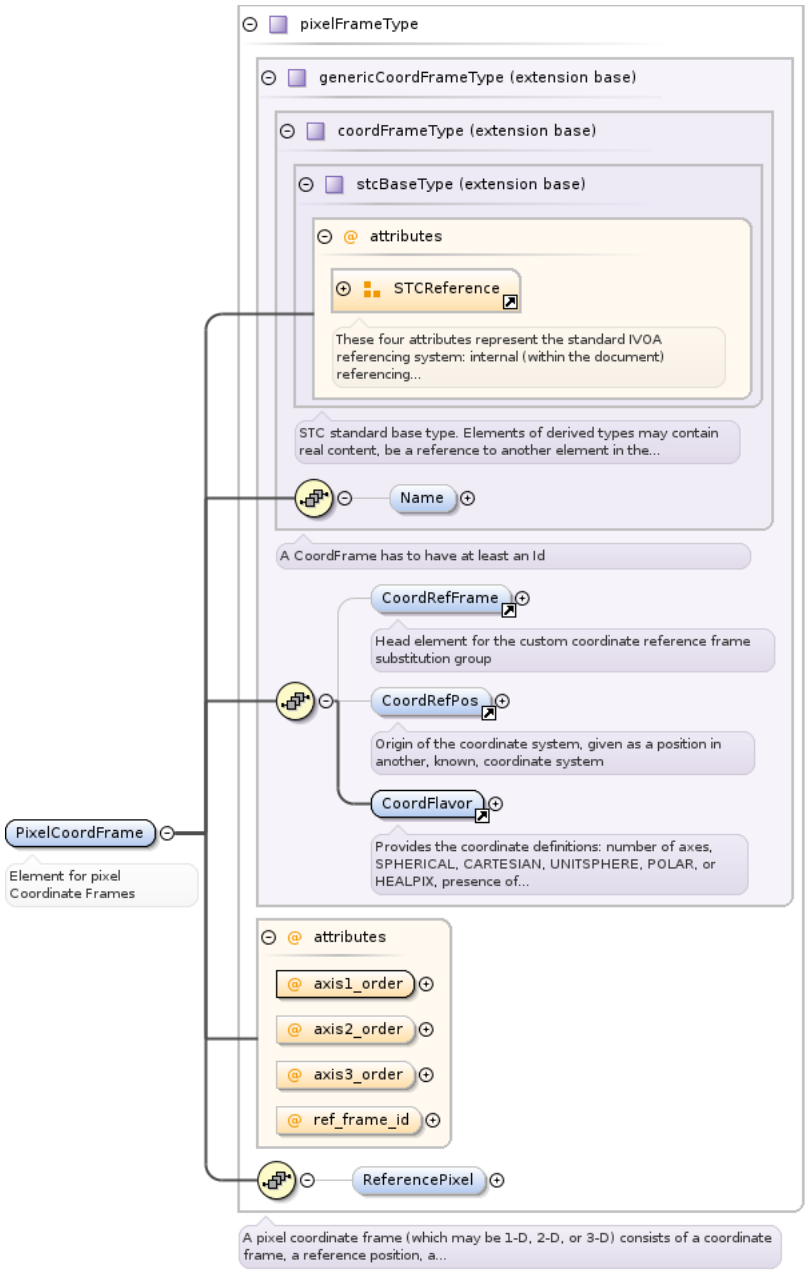
Source

```
<xs:element name="RedshiftFrame" type="redshiftFrameType" nillable="true">
  <xs:annotation>
    <xs:documentation>Contains the Doppler definitions, including whether the values are
 velocity or redshift (value_type)</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element PixelCoordFrame

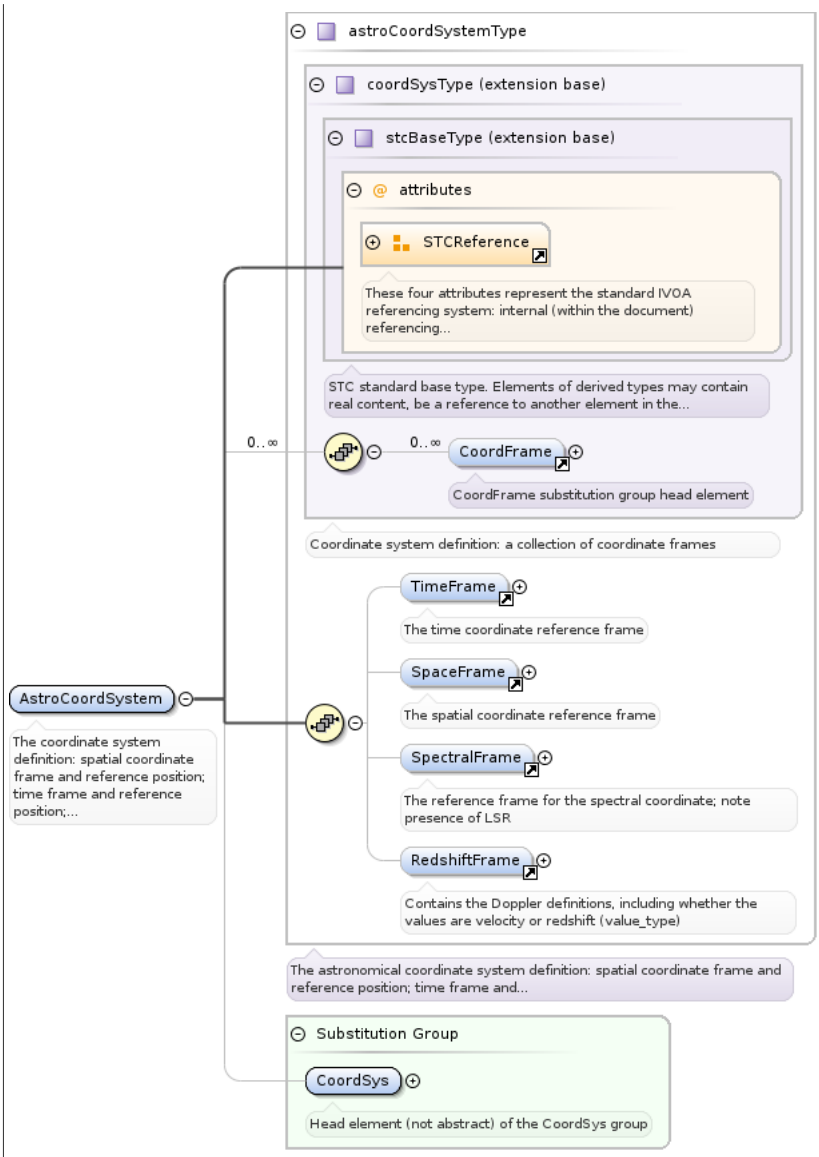
| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Element for pixel Coordinate Frames |

| | |
|---|---|
| Diagram |  |
| Type | pixelFrameType |
| Type hierarchy | • stcBaseType<br>• coordFrameType<br>• genericCoordFrameType<br>• pixelFrameType |
| Properties | content: complex<br>nillable: true |
| Used by | Complex Type pixelCoordSystemType |
| Model | Name{0,1} , CoordRefFrame{0,1} , CoordRefPos{0,1} , CoordFlavor , ReferencePixel{0,1} |
| Children | CoordFlavor, CoordRefFrame, CoordRefPos, Name, ReferencePixel |
| Instance | `<PixelCoordFrame axis1_order="" axis2_order="" axis3_order="" xlink:href="" id="" ID_type="" idref="" ID`<br>`www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`<Name>{0,1}</Name>`<br>`<CoordRefFrame ref_frame_id="">{0,1}</CoordRefFrame>`<br>`<CoordRefPos>{0,1}</CoordRefPos>`<br>`<CoordFlavor coord_naxes="2" handedness="">{1,1}</CoordFlavor>` |

<table>
<tr><td></td><td><pre>  <ReferencePixel>{0,1}</ReferencePixel>
</PixelCoordFrame></pre></td></tr>
<tr><td>Attributes</td><td>
<table>
<tr><th>QName</th><th>Type</th><th>Fixed</th><th>Default</th><th>Use</th></tr>
<tr><td>IDREF_type</td><td>xs:string</td><td></td><td></td><td>optional</td></tr>
<tr><td>ID_type</td><td>xs:string</td><td></td><td></td><td>optional</td></tr>
<tr><td>axis1_order</td><td>xs:integer</td><td></td><td></td><td>required</td></tr>
<tr><td>axis2_order</td><td>xs:integer</td><td></td><td></td><td>optional</td></tr>
<tr><td>axis3_order</td><td>xs:integer</td><td></td><td></td><td>optional</td></tr>
<tr><td>id</td><td>xs:ID</td><td></td><td></td><td>optional</td></tr>
<tr><td>idref</td><td>xs:IDREF</td><td></td><td></td><td>optional</td></tr>
<tr><td>ref_frame_id</td><td>xs:IDREF</td><td></td><td></td><td>optional</td></tr>
<tr><td>ucd</td><td>xs:string</td><td></td><td></td><td>optional</td></tr>
<tr><td>xlink:href</td><td>xs:anyURI</td><td></td><td></td><td>optional</td></tr>
<tr><td>xlink:type</td><td>restriction of xs:NMTOKEN</td><td></td><td>simple</td><td>optional</td></tr>
</table>
</td></tr>
<tr><td>Source</td><td><pre><xs:element name="PixelCoordFrame" type="pixelFrameType" nillable="true">
  <xs:annotation>
    <xs:documentation>Element for pixel Coordinate Frames</xs:documentation>
  </xs:annotation>
</xs:element></pre></td></tr>
<tr><td>Schema location</td><td>http://www.ivoa.net/xml/STC/stc-v1.30.xsd</td></tr>
</table>

## Element AstroCoordSystem

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The coordinate system definition: spatial coordinate frame and reference position; time frame and reference position; the coordinate flavor; the spectral fromae and redshift/Doppler frame; and the planetary ephemeris; an ID is required, since this is how coordinate elements are associated with their coordinate systems |

| | |
|---|---|
| Diagram |  |
| Type | astroCoordSystemType |
| Type hierarchy | • stcBaseType<br>  • coordSysType<br>  • astroCoordSystemType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • CoordSys |
| Used by | Complex Types: STCCoordinate, STCCoordinateList, STCRegion, STCRegionList, astroSTCDescription-Type, observatoryLocationType |
| Model | CoordFrame* , TimeFrame{0,1} , SpaceFrame{0,1} , SpectralFrame{0,1} , RedshiftFrame{0,1} |
| Children | CoordFrame, RedshiftFrame, SpaceFrame, SpectralFrame, TimeFrame |
| Instance | <AstroCoordSystem xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" xmlns<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <CoordFrame xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="">{0,unboun<br>CoordFrame><br>  <TimeFrame xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="">{0,1}</<br>TimeFrame><br>  <SpaceFrame xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="">{0,1}</<br>SpaceFrame><br>  <SpectralFrame xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="">{0,1}<<br>SpectralFrame> |

<table>
<tr><td></td><td>

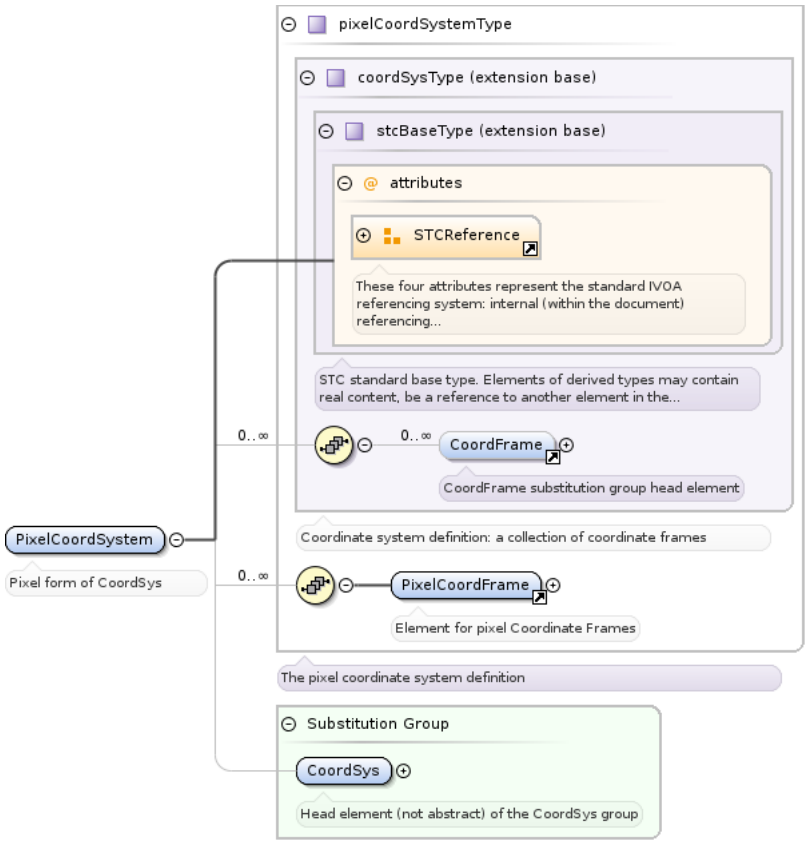
```
  <RedshiftFrame xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" value_
RedshiftFrame>
</AstroCoordSystem>
```

</td></tr>
<tr><td>Attributes</td><td>
<table>
<tr><th>QName</th><th>Type</th><th>Fixed</th><th>Default</th><th>Use</th></tr>
<tr><td>IDREF_type</td><td>xs:string</td><td></td><td></td><td>optional</td></tr>
<tr><td>ID_type</td><td>xs:string</td><td></td><td></td><td>optional</td></tr>
<tr><td>id</td><td>xs:ID</td><td></td><td></td><td>optional</td></tr>
<tr><td>idref</td><td>xs:IDREF</td><td></td><td></td><td>optional</td></tr>
<tr><td>ucd</td><td>xs:string</td><td></td><td></td><td>optional</td></tr>
<tr><td>xlink:href</td><td>xs:anyURI</td><td></td><td></td><td>optional</td></tr>
<tr><td>xlink:type</td><td>restriction of xs:NMTOKEN</td><td></td><td>simple</td><td>optional</td></tr>
</table>
</td></tr>
<tr><td>Source</td><td>

```
<xs:element name="AstroCoordSystem" type="astroCoordSystemType"
 substitutionGroup="CoordSys" nillable="true">
  <xs:annotation>
    <xs:documentation>The coordinate system definition: spatial coordinate frame and
 reference position; time frame and reference position; the coordinate flavor; the
 spectral fromae and redshift/Doppler frame; and the planetary ephemeris; an ID is
 required, since this is how coordinate elements are associated with their coordinate
 systems</xs:documentation>
  </xs:annotation>
</xs:element>
```

</td></tr>
<tr><td>Schema location</td><td>http://www.ivoa.net/xml/STC/stc-v1.30.xsd</td></tr>
</table>

## Element `PixelCoordSystem`

<table>
<tr><td>Namespace</td><td>http://www.ivoa.net/xml/STC/stc-v1.30.xsd</td></tr>
<tr><td>Annotations</td><td>Pixel form of CoordSys</td></tr>
<tr><td>Diagram</td><td> 
</td></tr>
<tr><td>Type</td><td>pixelCoordSystemType</td></tr>
<tr><td>Type hierarchy</td><td>

- stcBaseType
  - coordSysType
    - pixelCoordSystemType

</td></tr>
</table>

| | |
|---|---|
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • CoordSys |
| Used by | Complex Type pixelSpaceType |
| Model | CoordFrame* , PixelCoordFrame |
| Children | CoordFrame, PixelCoordFrame |
| Instance | <PixelCoordSystem xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" xmlns<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <CoordFrame xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="">{0,unboun<br>CoordFrame><br>  <PixelCoordFrame axis1_order="" axis2_order="" axis3_order="" xlink:href="" id="" ID_type="" idref=""<br>PixelCoordFrame><br></PixelCoordSystem> |

Attributes

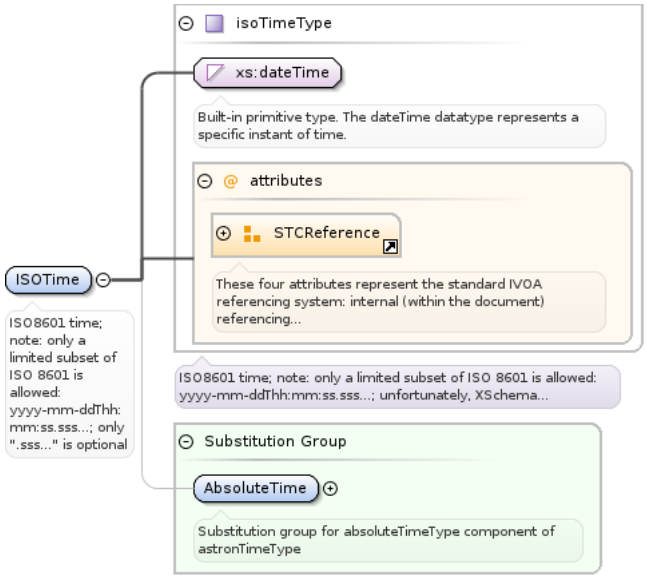
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:element name="PixelCoordSystem" type="pixelCoordSystemType"
 substitutionGroup="CoordSys" nillable="true">
  <xs:annotation>
    <xs:documentation>Pixel form of CoordSys</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element ISOTime

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | ISO8601 time; note: only a limited subset of ISO 8601 is allowed: yyyy-mm-ddThh:mm:ss.sss...; only ".sss..." is optional |
| Diagram |  |
| Type | isoTimeType |
| Properties | content: complex<br>nillable: true |

| | |
|---|---|
| Substitution Group Affiliation | • AbsoluteTime |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

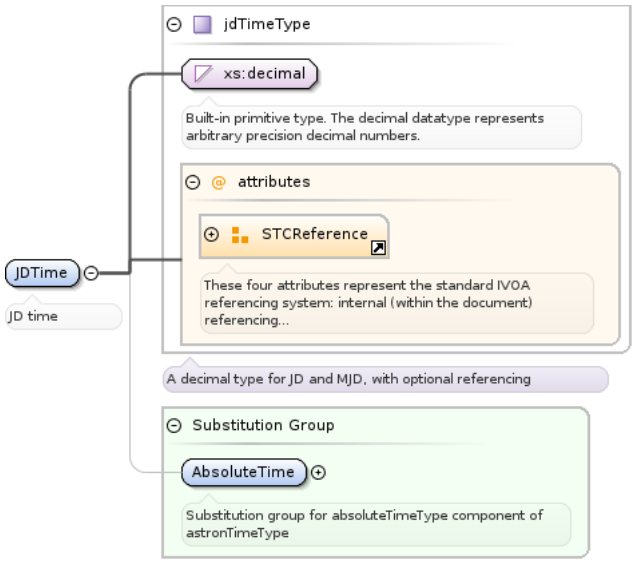
```
<xs:element name="ISOTime" type="isoTimeType" substitutionGroup="AbsoluteTime"
 nillable="true">
  <xs:annotation>
    <xs:documentation>ISO8601 time; note: only a limited subset of ISO 8601 is allowed:
 yyyy-mm-ddThh:mm:ss.sss...; only ".sss..." is optional</xs:documentation>
  </xs:annotation>
</xs:element>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Element JDTime

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | JD time |

Diagram



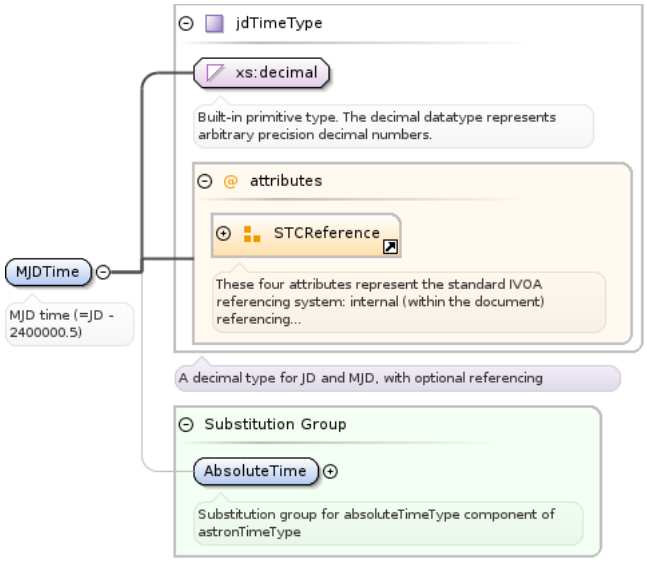

| | |
|---|---|
| Type | jdTimeType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • AbsoluteTime |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

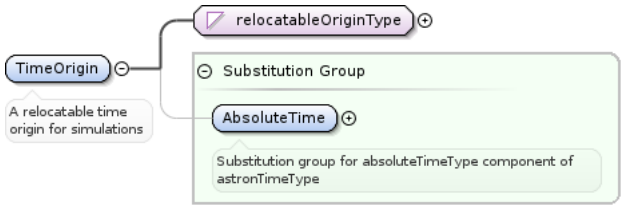
| | |
|---|---|
| Source | <xs:element name="JDTime" type="jdTimeType" substitutionGroup="AbsoluteTime"<br>nillable="true"><br><xs:annotation><br><xs:documentation>JD time</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element MJDTime

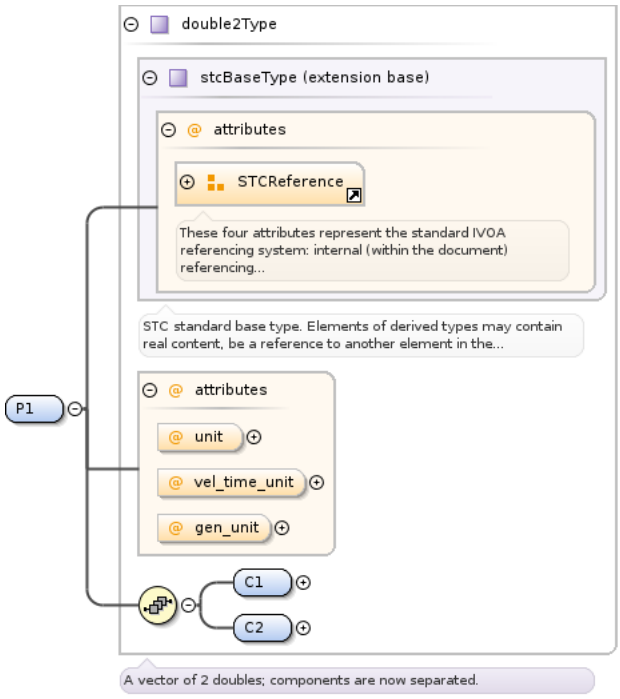
| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | MJD time (=JD - 2400000.5) |
| Diagram |  |
| Type | jdTimeType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • AbsoluteTime |
| Attributes | **QName** / **Type** / **Fixed** / **Default** / **Use**<br>**IDREF_type** / xs:string / / / optional<br>**ID_type** / xs:string / / / optional<br>**id** / xs:ID / / / optional<br>**idref** / xs:IDREF / / / optional<br>**ucd** / xs:string / / / optional<br>**xlink:href** / xs:anyURI / / / optional<br>**xlink:type** / restriction of xs:NMTOKEN / / simple / optional |
| Source | <xs:element name="MJDTime" type="jdTimeType" substitutionGroup="AbsoluteTime"<br>nillable="true"><br><xs:annotation><br><xs:documentation>MJD time (=JD - 2400000.5)</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element TimeOrigin

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | A relocatable time origin for simulations |

| | |
|---|---|
| Diagram |  |
| Type | relocatableOriginType |
| Properties | content: simple |
| Facets | enumeration RELOCATABLE |
| Substitution Group Affiliation | • AbsoluteTime |
| Source | <xs:element name="TimeOrigin" type="relocatableOriginType" substitutionGroup="AbsoluteTime"><br><xs:annotation><br><xs:documentation>A relocatable time origin for simulations</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element curve2Type / P1

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Diagram |  |
| Type | double2Type |
| Type hierarchy | • stcBaseType<br>• double2Type |
| Properties | content: complex<br>nillable: true |
| Model | C1 , C2 |
| Children | C1, C2 |
| Instance | <P1 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" unit=""<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br><C1 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C1><br><C2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C2> |

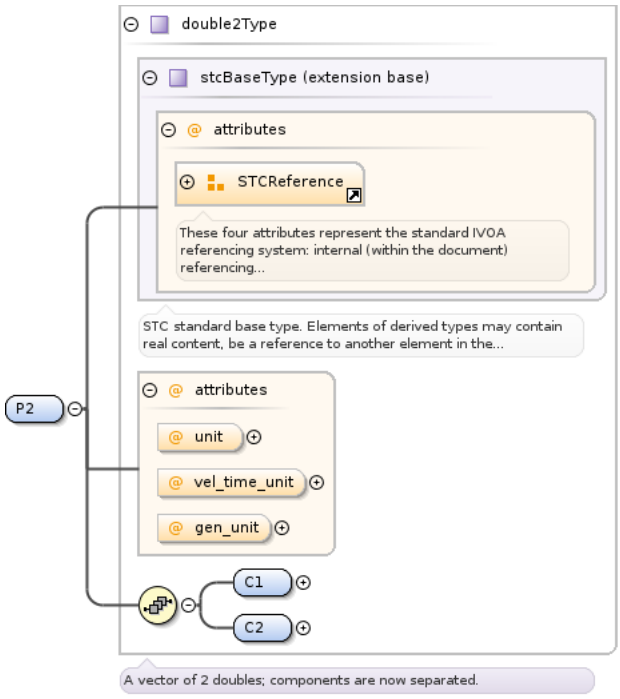
| | |
|---|---|
| | `</P1>` |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

| | |
|---|---|
| `Source` | `<xs:element name="P1" type="double2Type" nillable="true"/>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `curve2Type / P2`

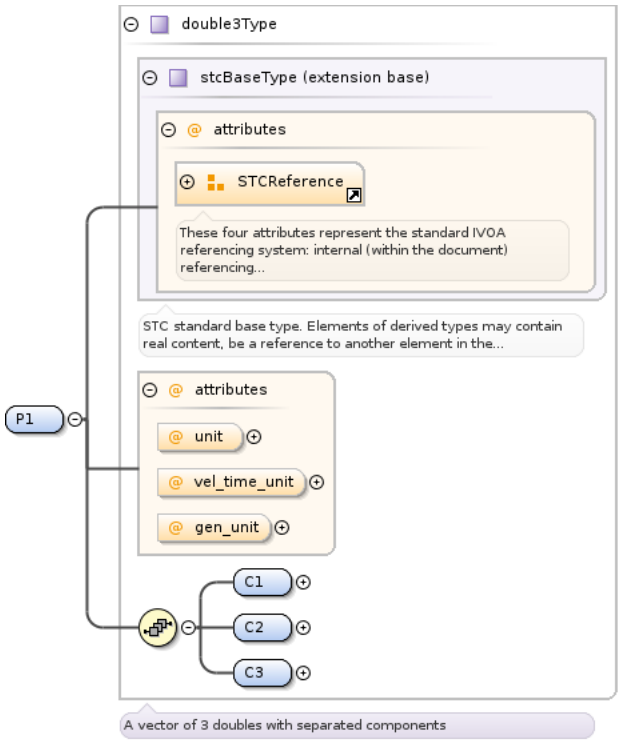
| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Diagram |  |



| | |
|---|---|
| Type | double2Type |
| Type hierarchy | • stcBaseType<br>  • double2Type |
| Properties | content: `complex`<br>nillable: `true` |
| Model | C1 , C2 |
| Children | C1, C2 |
| `Instance` | `<P2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" unit="" www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <C1 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp C1>`<br>`  <C2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp C2>`<br>`</P2>` |

| | | | | | |
|---|---|---|---|---|---|
| Attributes | **QName** | **Type** | **Fixed** | **Default** | **Use** |
| | **IDREF_type** | xs:string | | | optional |
| | **ID_type** | xs:string | | | optional |
| | **gen_unit** | unitType | | | optional |
| | **id** | xs:ID | | | optional |
| | **idref** | xs:IDREF | | | optional |
| | **ucd** | xs:string | | | optional |
| | **unit** | posUnitType | | | optional |
| | **vel_time_unit** | velTimeUnitType | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |
| `Source` | `<xs:element name="P2" type="double2Type" nillable="true"/>` | | | | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | | | | |

## Element `curve3Type / P1`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Diagram |  |
| Type | double3Type |
| Type hierarchy | • stcBaseType<br>  • double3Type |
| Properties | content: `complex`<br>nillable: `true` |
| Model | C1 , C2 , C3 |
| Children | C1, C2, C3 |
| `Instance` | `<P1 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" unit="" www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <C1 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp C1>`<br>`  <C2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp C2>`<br>`  <C3 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp C3>` |

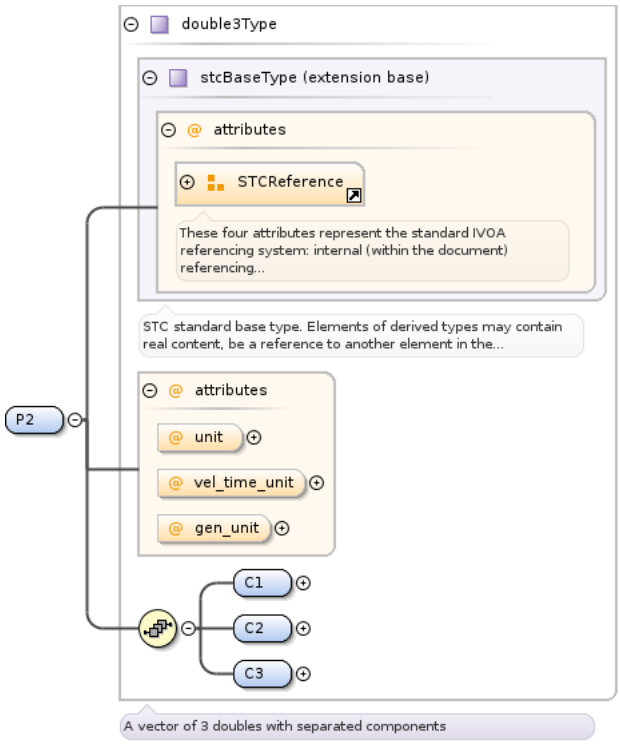
| | |
|---|---|
| | `</P1>` |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

| | |
|---|---|
| `Source` | `<xs:element name="P1" type="double3Type" nillable="true"/>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `curve3Type / P2`

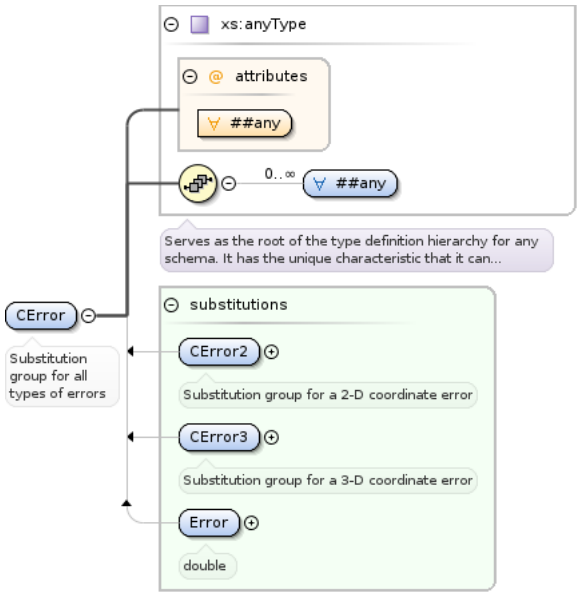
| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Diagram |  |



| | |
|---|---|
| Type | double3Type |
| Type hierarchy | • stcBaseType<br>  • double3Type |
| Properties | content: `complex`<br>nillable: `true` |
| Model | C1 , C2 , C3 |
| Children | C1, C2, C3 |
| `Instance` | `<P2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" unit="" www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <C1 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp C1>`<br>`  <C2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp C2>` |

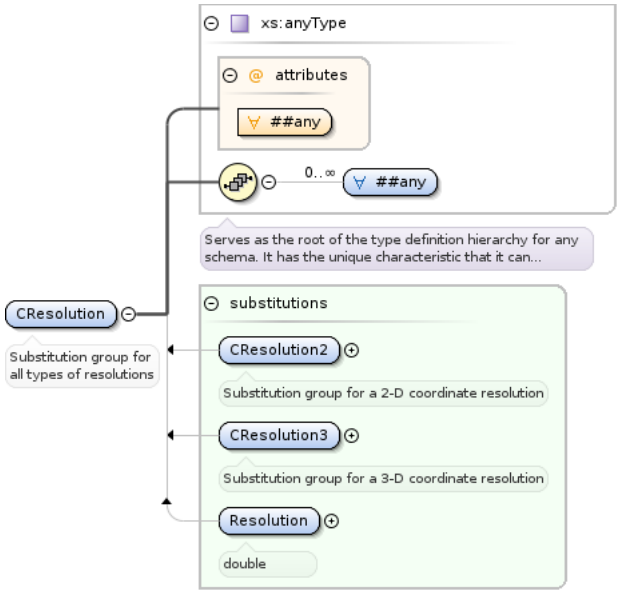
<table>
<tr><td></td><td><pre>  <C3 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp
C3>
</P2></pre></td></tr>
<tr><td>Attributes</td><td>
<table>
<tr><th>QName</th><th>Type</th><th>Fixed</th><th>Default</th><th>Use</th></tr>
<tr><td>IDREF_type</td><td>xs:string</td><td></td><td></td><td>optional</td></tr>
<tr><td>ID_type</td><td>xs:string</td><td></td><td></td><td>optional</td></tr>
<tr><td>gen_unit</td><td>unitType</td><td></td><td></td><td>optional</td></tr>
<tr><td>id</td><td>xs:ID</td><td></td><td></td><td>optional</td></tr>
<tr><td>idref</td><td>xs:IDREF</td><td></td><td></td><td>optional</td></tr>
<tr><td>ucd</td><td>xs:string</td><td></td><td></td><td>optional</td></tr>
<tr><td>unit</td><td>posUnitType</td><td></td><td></td><td>optional</td></tr>
<tr><td>vel_time_unit</td><td>velTimeUnitType</td><td></td><td></td><td>optional</td></tr>
<tr><td>xlink:href</td><td>xs:anyURI</td><td></td><td></td><td>optional</td></tr>
<tr><td>xlink:type</td><td>restriction of xs:NMTOKEN</td><td></td><td>simple</td><td>optional</td></tr>
</table>
</td></tr>
<tr><td>Source</td><td><pre><xs:element name="P2" type="double3Type" nillable="true"/></pre></td></tr>
<tr><td>Schema location</td><td>http://www.ivoa.net/xml/STC/stc-v1.30.xsd</td></tr>
</table>

## Element CError

<table>
<tr><td>Namespace</td><td>http://www.ivoa.net/xml/STC/stc-v1.30.xsd</td></tr>
<tr><td>Annotations</td><td>Substitution group for all types of errors</td></tr>
<tr><td>Diagram</td><td> 
</td></tr>
<tr><td>Properties</td><td>abstract: true</td></tr>
<tr><td>Substitution Group</td><td>
<ul>
<li>Error</li>
<li>Error2Radius</li>
<li>Error2</li>
<li>Error2Matrix</li>
<li>Error3Radius</li>
<li>Error3</li>
<li>Error3Matrix</li>
</ul>
</td></tr>
<tr><td>Source</td><td><pre><xs:element name="CError" type="xs:anyType" abstract="true">
  <xs:annotation>
    <xs:documentation>Substitution group for all types of errors</xs:documentation>
  </xs:annotation>
</xs:element></pre></td></tr>
</table>

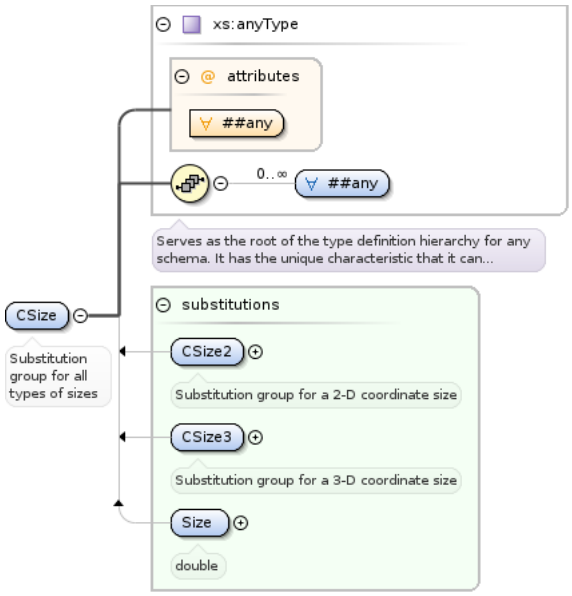
| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `CResolution`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `Substitution group for all types of resolutions` |
| Diagram |  |
| Properties | abstract: `true` |
| `Substitution Group` | • Resolution<br>• Resolution2Radius<br>• Resolution2<br>• Resolution2Matrix<br>• Resolution3Radius<br>• Resolution3<br>• Resolution3Matrix |
| `Source` | `<xs:element name="CResolution" type="xs:anyType" abstract="true">`<br>`  <xs:annotation>`<br>`  <xs:documentation>Substitution group for all types of resolutions</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

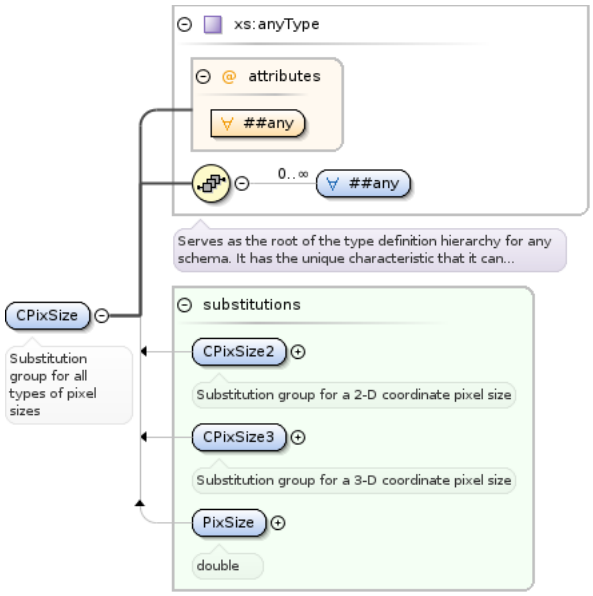
## Element `CSize`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `Substitution group for all types of sizes` |

| | |
|---|---|
| Diagram |  |
| Properties | abstract: `true` |
| `Substitution Group` | • Size<br>• Size2Radius<br>• Size2<br>• Size2Matrix<br>• Size3Radius<br>• Size3<br>• Size3Matrix |
| `Source` | `<xs:element name="CSize" type="xs:anyType" abstract="true">`<br>`  <xs:annotation>`<br>`  <xs:documentation>Substitution group for all types of sizes</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

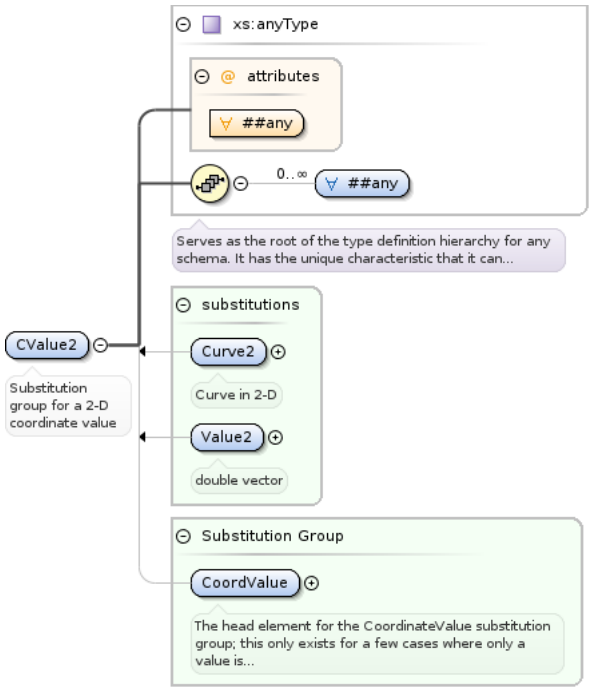
## Element `CPixSize`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `Substitution group for all types of pixel sizes` |

| | |
|---|---|
| Diagram |  |
| Properties | abstract: `true` |
| `Substitution Group` | • PixSize<br>• PixSize2<br>• PixSize2Matrix<br>• PixSize3<br>• PixSize3Matrix |
| `Source` | `<xs:element name="CPixSize" type="xs:anyType" abstract="true">`<br>`  <xs:annotation>`<br>`  <xs:documentation>Substitution group for all types of pixel sizes</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

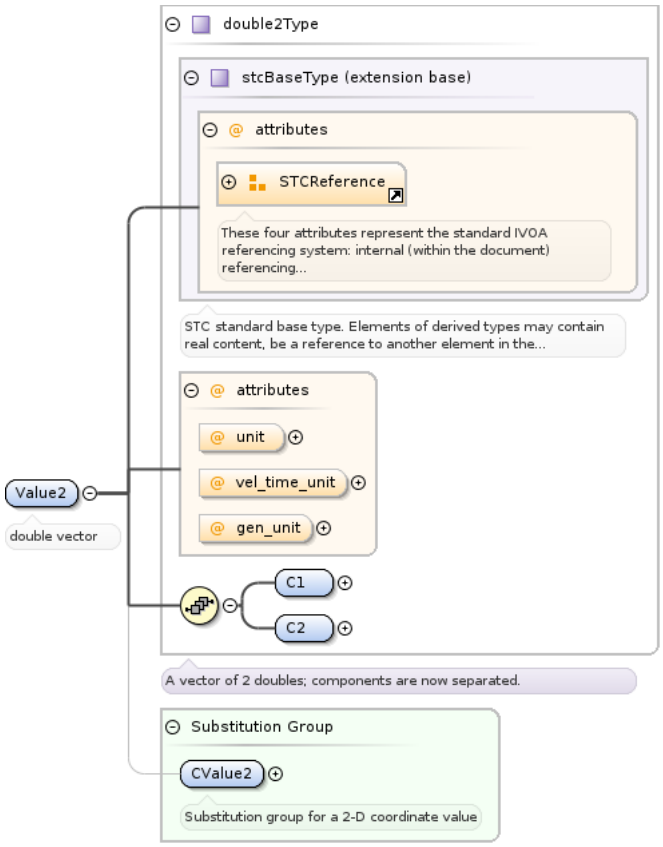
## Element `CValue2`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `Substitution group for a 2-D coordinate value` |

| | |
|---|---|
| Diagram |  |
| Properties | abstract: `true` |
| `Substitution Group` | • Value2<br>• Curve2 |
| `Substitution Group Affiliation` | • CoordValue |
| Used by | Complex Types genVector2CoordinateType, posVector2CoordinateType, vector2CoordinateType, velVector2CoordinateType |
| `Source` | `<xs:element name="CValue2" type="xs:anyType" abstract="true" substitutionGroup="CoordValue"><xs:annotation><xs:documentation>Substitution group for a 2-D coordinate value</xs:documentation></xs:annotation></xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `Value2`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `double vector` |

| | |
|---|---|
| Diagram |  |
| Type | double2Type |
| Type hierarchy | • stcBaseType<br>  • double2Type |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • CValue2 |
| Used by | Complex Type pixelVector2CoordinateType |
| Model | C1 , C2 |
| Children | C1, C2 |
| Instance | <Value2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" uni<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <C1 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C1><br>  <C2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C2><br></Value2> |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |

| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:element name="Value2" type="double2Type" substitutionGroup="CValue2" nillable="true">
  <xs:annotation>
    <xs:documentation>double vector</xs:documentation>
  </xs:annotation>
</xs:element>
```

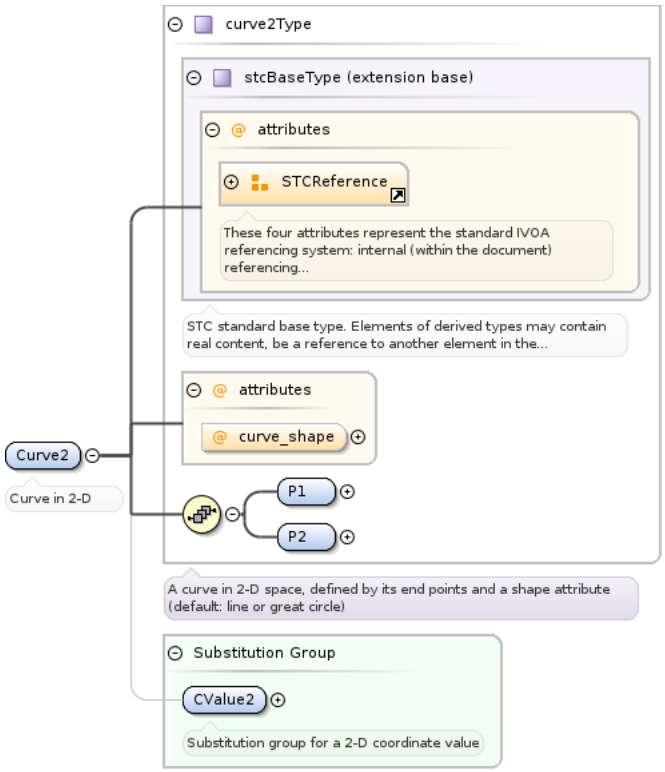
Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Element Curve2

Namespace: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

Annotations: Curve in 2-D

Diagram




Type: curve2Type

Type hierarchy:
- stcBaseType
  - curve2Type

Properties

| | |
|---|---|
| content: | complex |
| nillable: | true |

Substitution Group Affiliation:
- CValue2

Model: P1 , P2

Children: P1, P2

Instance

```
<Curve2 curve_shape="line" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd
www.ivoa.net/xml/STC/stc-v1.30.xsd">
  <P1 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" unit=
P1>
  <P2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" unit=
P2>
</Curve2>
```

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |

| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **curve_shape** | xs:string | | line | optional |
| | **id** | xs:ID | | | optional |
| | **idref** | xs:IDREF | | | optional |
| | **ucd** | xs:string | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:element name="Curve2" type="curve2Type" substitutionGroup="CValue2" nillable="true">
  <xs:annotation>
    <xs:documentation>Curve in 2-D</xs:documentation>
  </xs:annotation>
</xs:element>
```

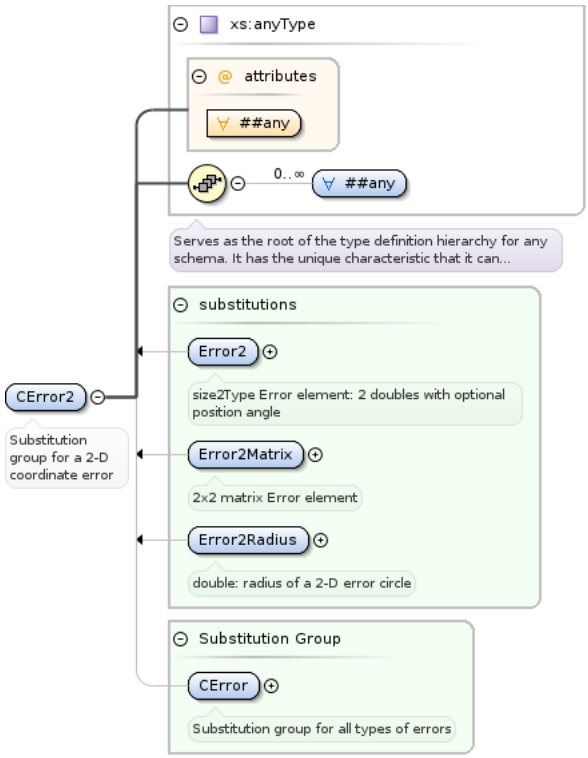
Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Element CError2

Namespace: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

Annotations: Substitution group for a 2-D coordinate error

Diagram




Properties: abstract: true

Substitution Group
- Error2Radius
- Error2
- Error2Matrix

Substitution Group Affiliation
- CError

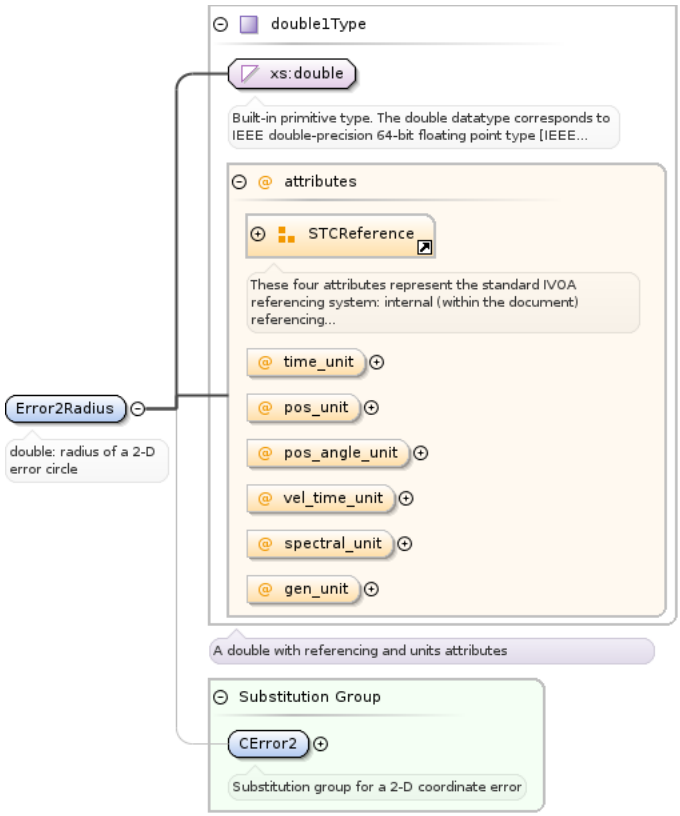
Used by: Complex Types — genVector2CoordinateType, posVector2CoordinateType, vector2CoordinateType, velVector2CoordinateType

Source

```
<xs:element name="CError2" type="xs:anyType" abstract="true" substitutionGroup="CError">
  <xs:annotation>
    <xs:documentation>Substitution group for a 2-D coordinate error</xs:documentation>
  </xs:annotation>
</xs:element>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Element `Error2Radius`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `double: radius of a 2-D error circle` |
| Diagram |  |
| Type | double1Type |
| Properties | content: `complex`<br>nillable: `true` |
| `Substitution Group Affiliation` | • CError2 |

Attributes

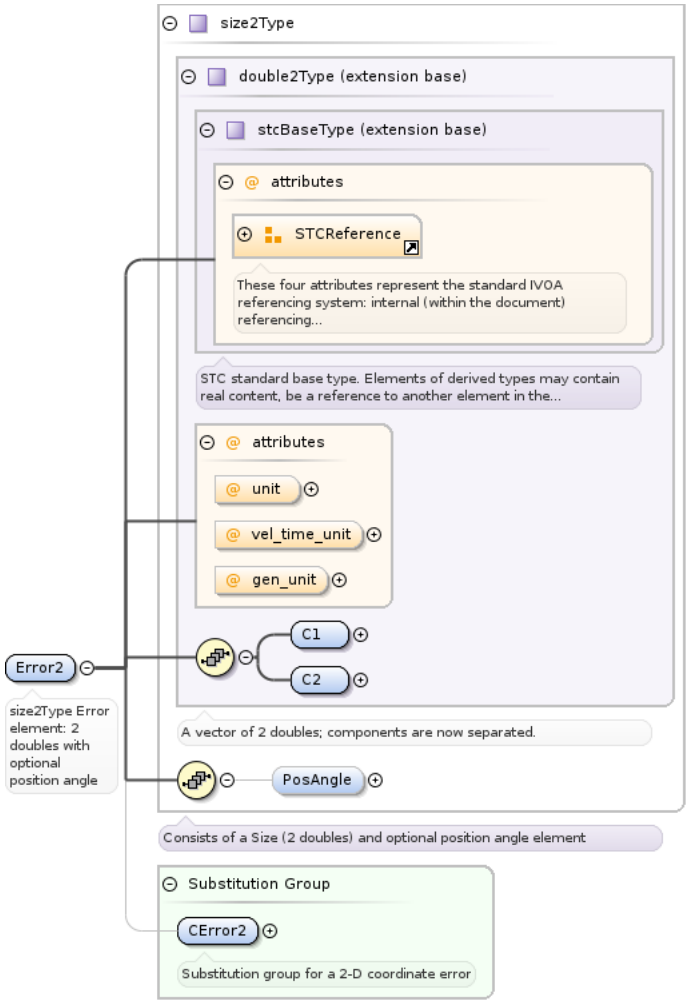
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **pos_angle_unit** | angleUnitType | | | optional |
| **pos_unit** | posUnitType | | | optional |
| **spectral_unit** | spectralUnitType | | | optional |
| **time_unit** | timeUnitType | | | optional |
| **ucd** | xs:string | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:element name="Error2Radius" type="double1Type" substitutionGroup="CError2"
 nillable="true">
  <xs:annotation>
    <xs:documentation>double: radius of a 2-D error circle</xs:documentation>
  </xs:annotation>
</xs:element>
```

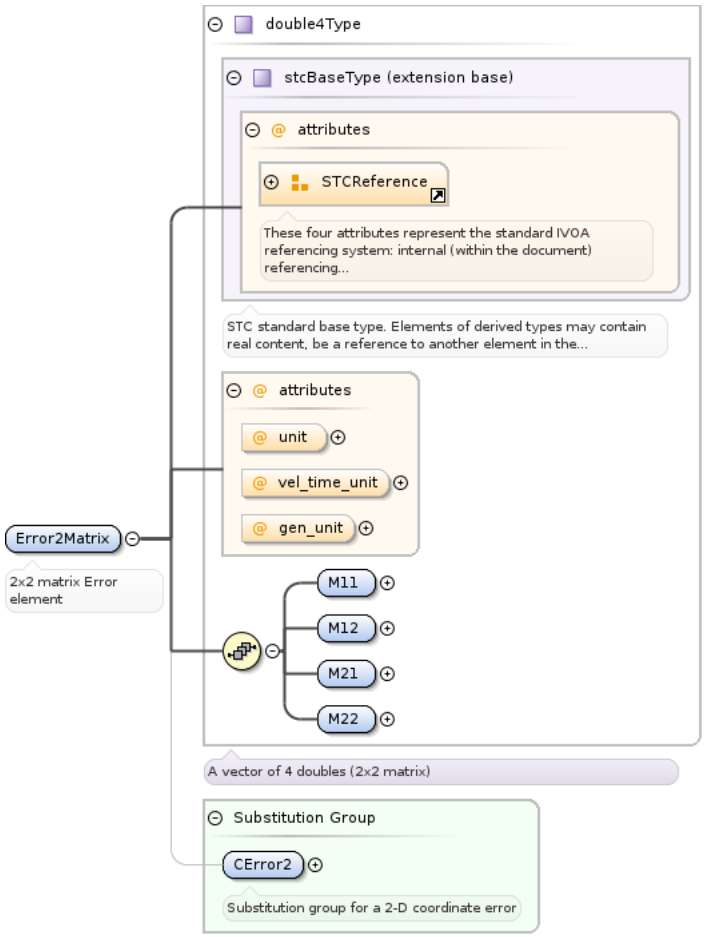
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
|---|---|

## Element `Error2`

| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
|---|---|
| Annotations | `size2Type Error element: 2 doubles with optional position angle` |
| Diagram |  |
| Type | size2Type |
| Type hierarchy | • stcBaseType<br>  • double2Type<br>  • size2Type |
| Properties | content: `complex`<br>nillable: `true` |
| `Substitution Group Affiliation` | • CError2 |
| Model | C1 , C2 , PosAngle{0,1} |
| Children | C1, C2, PosAngle |
| `Instance` | `<Error2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" uni`<br>`www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <C1 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp`<br>`C1>`<br>`  <C2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp`<br>`C2>`<br>`  <PosAngle xlink:href="" id="" ID_type="" idref="" IDREF_type="" reference="X" xlink:type="simple" ucd=`<br>`PosAngle>`<br>`</Error2>` |

| | | | | | |
|---|---|---|---|---|---|
| Attributes | **QName** | **Type** | **Fixed** | **Default** | **Use** |
| | **IDREF_type** | xs:string | | | optional |
| | **ID_type** | xs:string | | | optional |
| | **gen_unit** | unitType | | | optional |
| | **id** | xs:ID | | | optional |
| | **idref** | xs:IDREF | | | optional |
| | **ucd** | xs:string | | | optional |
| | **unit** | posUnitType | | | optional |
| | **vel_time_unit** | velTimeUnitType | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |
| Source | <xs:element name="Error2" type="size2Type" substitutionGroup="CError2" nillable="true"><br><xs:annotation><br><xs:documentation>size2Type Error element: 2 doubles with optional position angle</xs:documentation><br></xs:annotation><br></xs:element> | | | | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | | | | |

## Element `Error2Matrix`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | 2x2 matrix Error element |
| Diagram |  |
| Type | double4Type |
| Type hierarchy | • stcBaseType<br>  • double4Type |

| | |
|---|---|
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • CError2 |
| Model | M11 , M12 , M21 , M22 |
| Children | M11, M12, M21, M22 |
| Instance | <Error2Matrix gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd=<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <M11>{1,1}</M11><br>  <M12>{1,1}</M12><br>  <M21>{1,1}</M21><br>  <M22>{1,1}</M22><br></Error2Matrix> |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

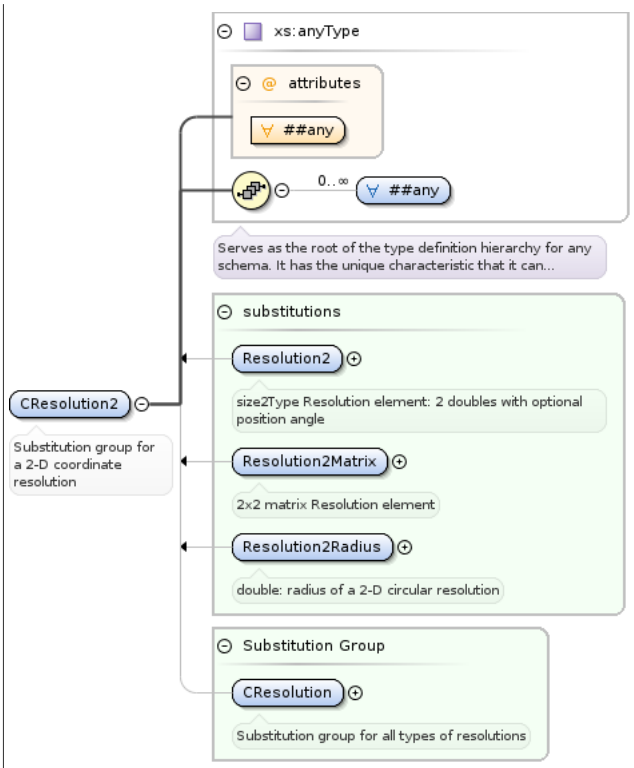
Source

```
<xs:element name="Error2Matrix" type="double4Type" substitutionGroup="CError2"
 nillable="true">
  <xs:annotation>
    <xs:documentation>2x2 matrix Error element</xs:documentation>
  </xs:annotation>
</xs:element>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

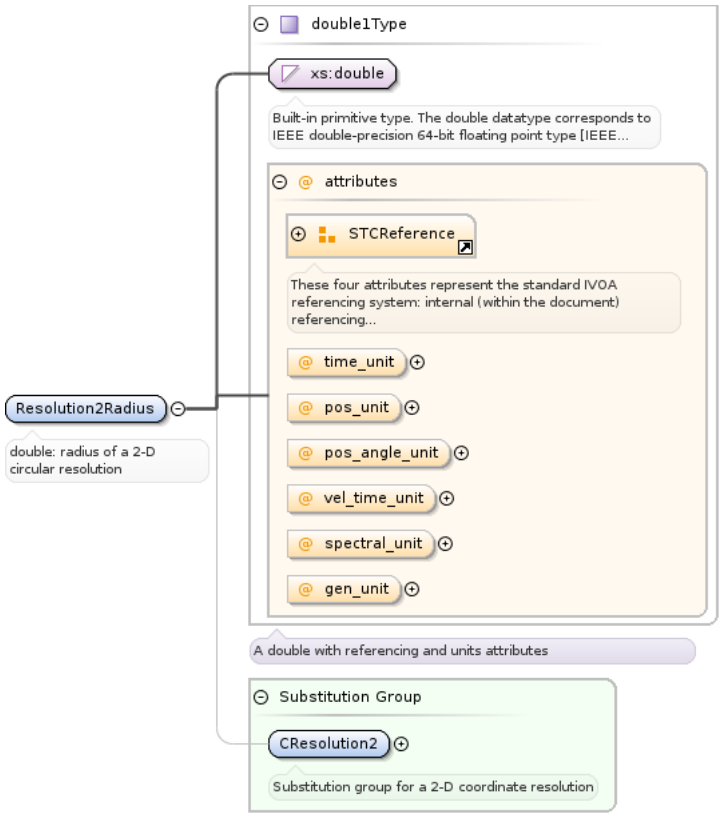
## Element CResolution2

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Substitution group for a 2-D coordinate resolution |

| | |
|---|---|
| Diagram |  |
| Properties | abstract: `true` |
| `Substitution Group` | • Resolution2Radius<br>• Resolution2<br>• Resolution2Matrix |
| `Substitution Group Affiliation` | • CResolution |
| Used by | Complex Types genVector2CoordinateType, posVector2CoordinateType, vector2CoordinateType, velVector2CoordinateType |
| `Source` | `<xs:element name="CResolution2" type="xs:anyType" abstract="true" substitutionGroup="CResolution"> <xs:annotation> <xs:documentation>Substitution group for a 2-D coordinate resolution</ xs:documentation> </xs:annotation> </xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `Resolution2Radius`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `double: radius of a 2-D circular resolution` |

| | |
|---|---|
| Diagram |  |
| Type | double1Type |
| Properties | content: `complex`<br>nillable: `true` |
| `Substitution Group Affiliation` | • CResolution2 |

Attributes

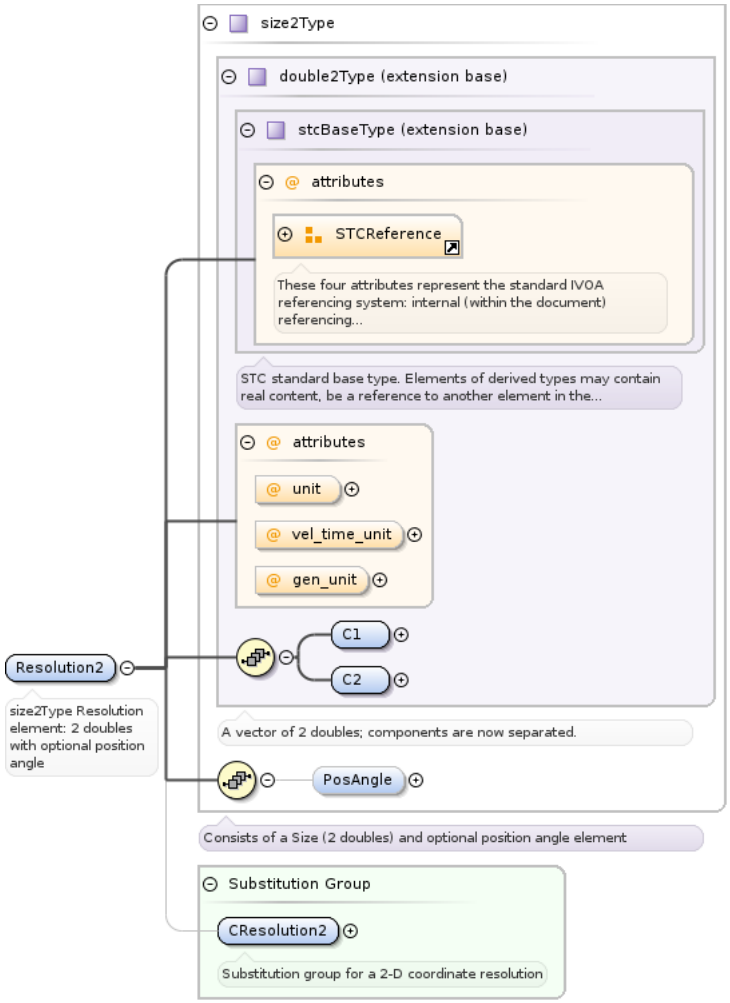
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **pos_angle_unit** | angleUnitType | | | optional |
| **pos_unit** | posUnitType | | | optional |
| **spectral_unit** | spectralUnitType | | | optional |
| **time_unit** | timeUnitType | | | optional |
| **ucd** | xs:string | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

`Source`

```
<xs:element name="Resolution2Radius" type="double1Type" substitutionGroup="CResolution2"
 nillable="true">
  <xs:annotation>
    <xs:documentation>double: radius of a 2-D circular resolution</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `Resolution2`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `size2Type Resolution element: 2 doubles with optional position angle` |
| Diagram |  |
| Type | size2Type |
| Type hierarchy | • stcBaseType<br>  • double2Type<br>  • size2Type |
| Properties | content: `complex`<br>nillable: `true` |
| `Substitution Group Affiliation` | • CResolution2 |
| Model | C1 , C2 , PosAngle{0,1} |
| Children | C1, C2, PosAngle |
| `Instance` | `<Resolution2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="`<br>`www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <C1 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp`<br>`C1>`<br>`  <C2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp`<br>`C2>`<br>`  <PosAngle xlink:href="" id="" ID_type="" idref="" IDREF_type="" reference="X" xlink:type="simple" ucd=`<br>`PosAngle>`<br>`</Resolution2>` |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |

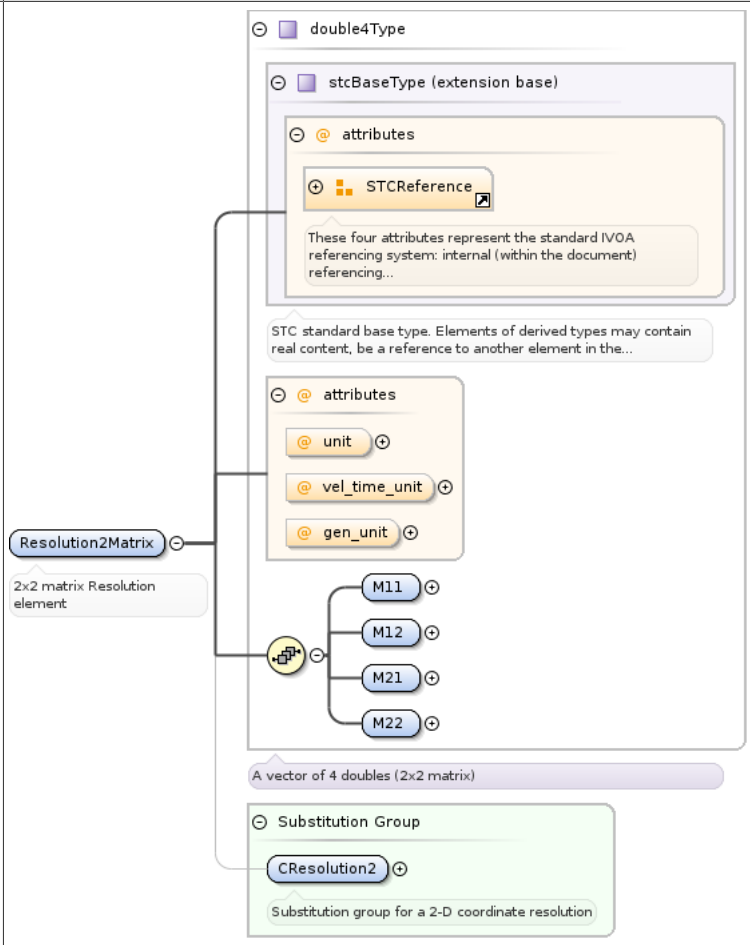
| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **ID_type** | xs:string | | | optional |
| | **gen_unit** | unitType | | | optional |
| | **id** | xs:ID | | | optional |
| | **idref** | xs:IDREF | | | optional |
| | **ucd** | xs:string | | | optional |
| | **unit** | posUnitType | | | optional |
| | **vel_time_unit** | velTimeUnitType | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:element name="Resolution2" type="size2Type" substitutionGroup="CResolution2"
 nillable="true">
  <xs:annotation>
    <xs:documentation>size2Type Resolution element: 2 doubles with optional position
 angle</xs:documentation>
  </xs:annotation>
</xs:element>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Element `Resolution2Matrix`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `2x2 matrix Resolution element` |
| Diagram |  |
| Type | double4Type |
| Type hierarchy | • stcBaseType<br>  • double4Type |

| | |
|---|---|
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • CResolution2 |
| Model | M11 , M12 , M21 , M22 |
| Children | M11, M12, M21, M22 |
| Instance | <Resolution2Matrix gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple"<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br><M11>{1,1}</M11><br><M12>{1,1}</M12><br><M21>{1,1}</M21><br><M22>{1,1}</M22><br></Resolution2Matrix> |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

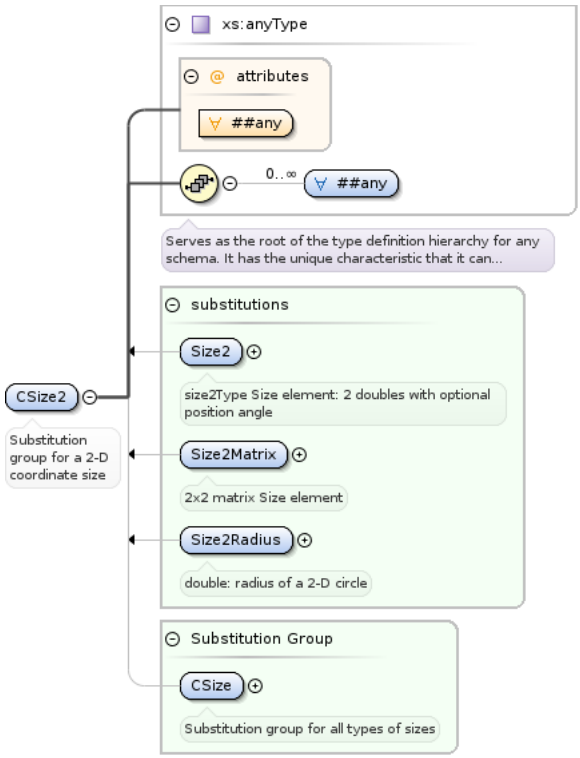
Source

```
<xs:element name="Resolution2Matrix" type="double4Type" substitutionGroup="CResolution2"
 nillable="true">
  <xs:annotation>
    <xs:documentation>2x2 matrix Resolution element</xs:documentation>
  </xs:annotation>
</xs:element>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

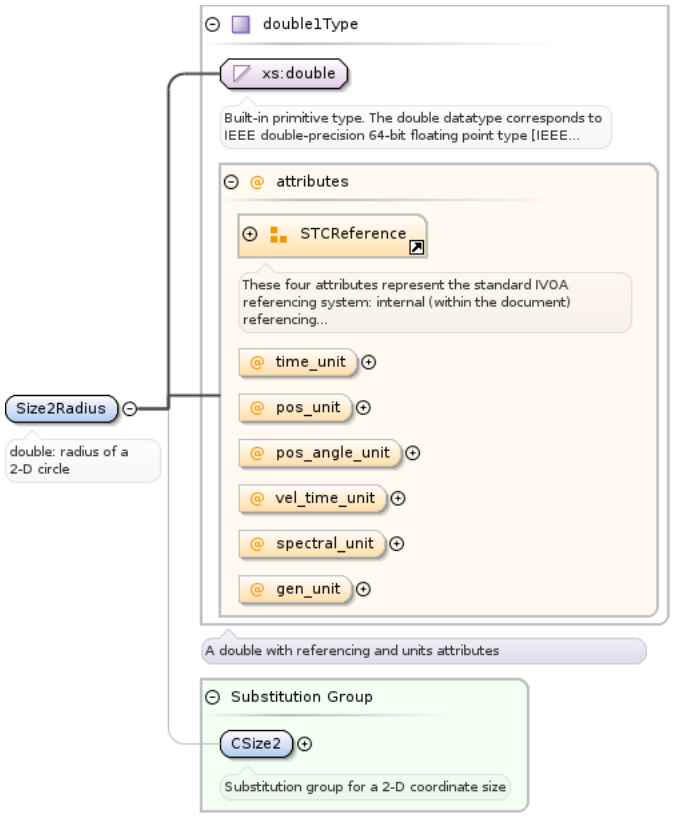
## Element CSize2

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Substitution group for a 2-D coordinate size |

| | |
|---|---|
| Diagram |  |
| Properties | abstract: `true` |
| `Substitution Group` | • Size2Radius<br>• Size2<br>• Size2Matrix |
| `Substitution Group Affiliation` | • CSize |
| Used by | Complex Types genVector2CoordinateType, posVector2CoordinateType, vector2CoordinateType, velVector2CoordinateType |
| `Source` | `<xs:element name="CSize2" type="xs:anyType" abstract="true" substitutionGroup="CSize">`<br>`  <xs:annotation>`<br>`  <xs:documentation>Substitution group for a 2-D coordinate size</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `Size2Radius`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `double: radius of a 2-D circle` |

| | |
|---|---|
| Diagram |  |
| Type | double1Type |
| Properties | content: `complex`<br>nillable: `true` |
| `Substitution Group Affiliation` | • CSize2 |

Attributes

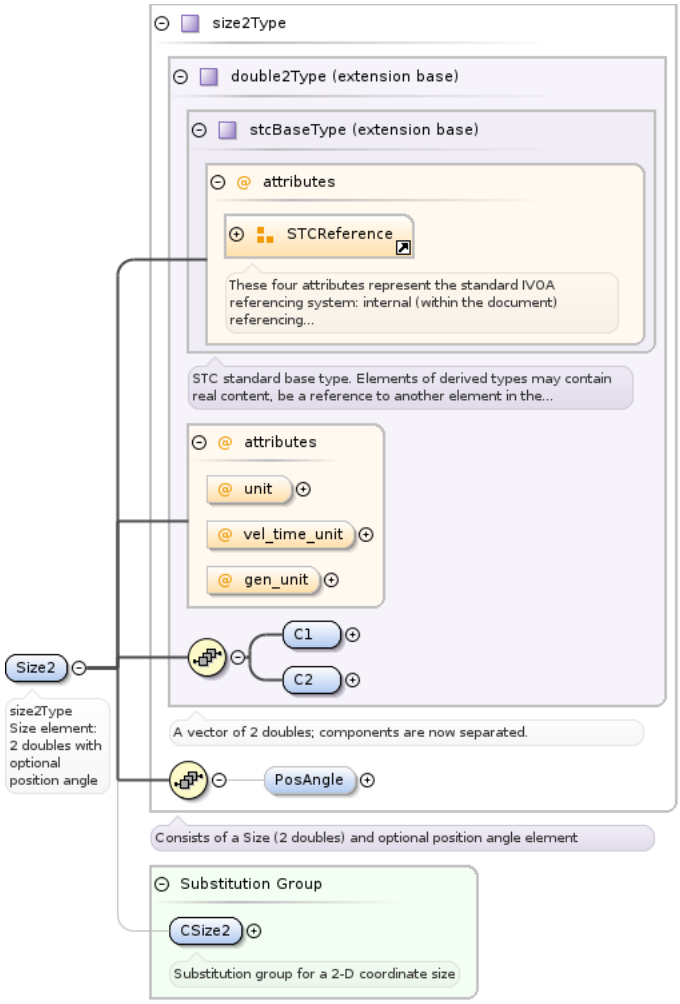
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **pos_angle_unit** | angleUnitType | | | optional |
| **pos_unit** | posUnitType | | | optional |
| **spectral_unit** | spectralUnitType | | | optional |
| **time_unit** | timeUnitType | | | optional |
| **ucd** | xs:string | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

`Source`

```
<xs:element name="Size2Radius" type="double1Type" substitutionGroup="CSize2"
 nillable="true">
  <xs:annotation>
    <xs:documentation>double: radius of a 2-D circle</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element Size2

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | size2Type Size element: 2 doubles with optional position angle |
| Diagram |  |
| Type | size2Type |
| Type hierarchy | • stcBaseType<br>  • double2Type<br>  • size2Type |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • CSize2 |
| Model | C1 , C2 , PosAngle{0,1} |
| Children | C1, C2, PosAngle |
| Instance | <Size2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" unit<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <C1 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C1><br>  <C2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C2><br>  <PosAngle xlink:href="" id="" ID_type="" idref="" IDREF_type="" reference="X" xlink:type="simple" ucd=<br>PosAngle><br></Size2> |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| IDREF_type | xs:string | | | optional |

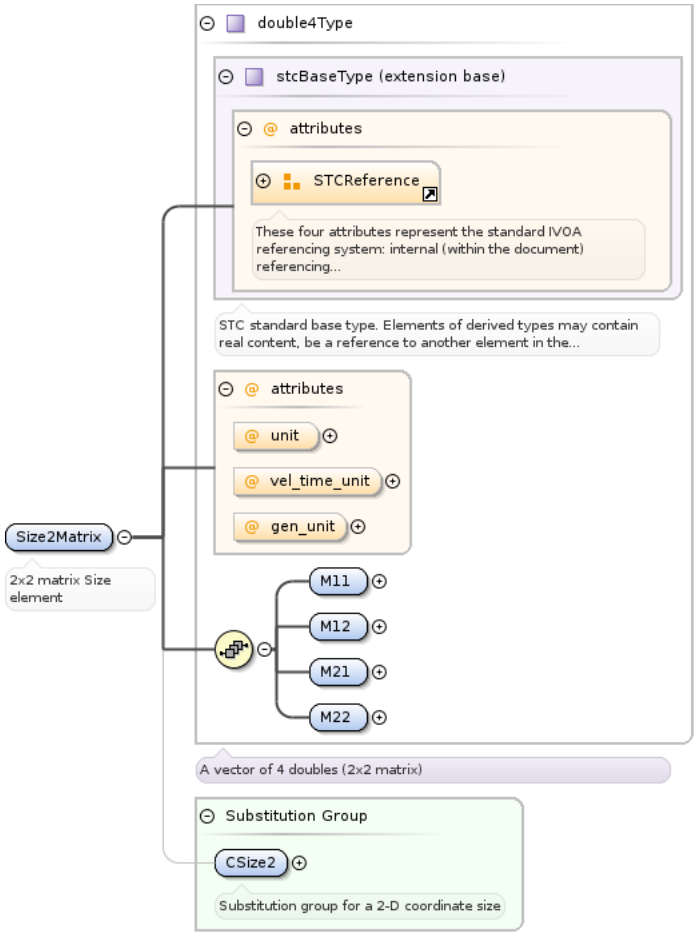
| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **ID_type** | xs:string | | | optional |
| | **gen_unit** | unitType | | | optional |
| | **id** | xs:ID | | | optional |
| | **idref** | xs:IDREF | | | optional |
| | **ucd** | xs:string | | | optional |
| | **unit** | posUnitType | | | optional |
| | **vel_time_unit** | velTimeUnitType | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:element name="Size2" type="size2Type" substitutionGroup="CSize2" nillable="true">
  <xs:annotation>
    <xs:documentation>size2Type Size element: 2 doubles with optional position angle</
xs:documentation>
  </xs:annotation>
</xs:element>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Element `Size2Matrix`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `2x2 matrix Size element` |
| Diagram |  |
| Type | double4Type |
| Type hierarchy | • stcBaseType<br>  • double4Type |
| Properties | content: `complex` |

| | |
|---|---|
| | nillable: `true` |
| Substitution Group Affiliation | • CSize2 |
| Model | M11 , M12 , M21 , M22 |
| Children | M11, M12, M21, M22 |
| Instance | <Size2Matrix gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <M11>{1,1}</M11><br>  <M12>{1,1}</M12><br>  <M21>{1,1}</M21><br>  <M22>{1,1}</M22><br></Size2Matrix> |

Attributes

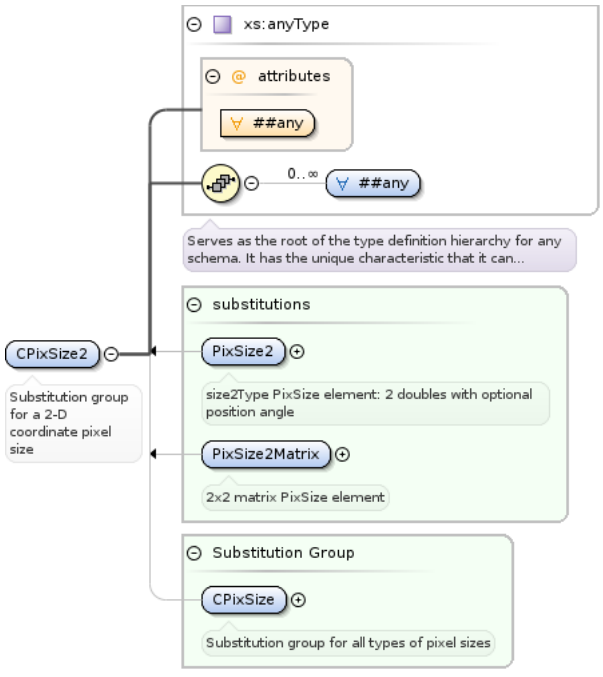
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:element name="Size2Matrix" type="double4Type" substitutionGroup="CSize2"
 nillable="true">
  <xs:annotation>
    <xs:documentation>2x2 matrix Size element</xs:documentation>
  </xs:annotation>
</xs:element>
```

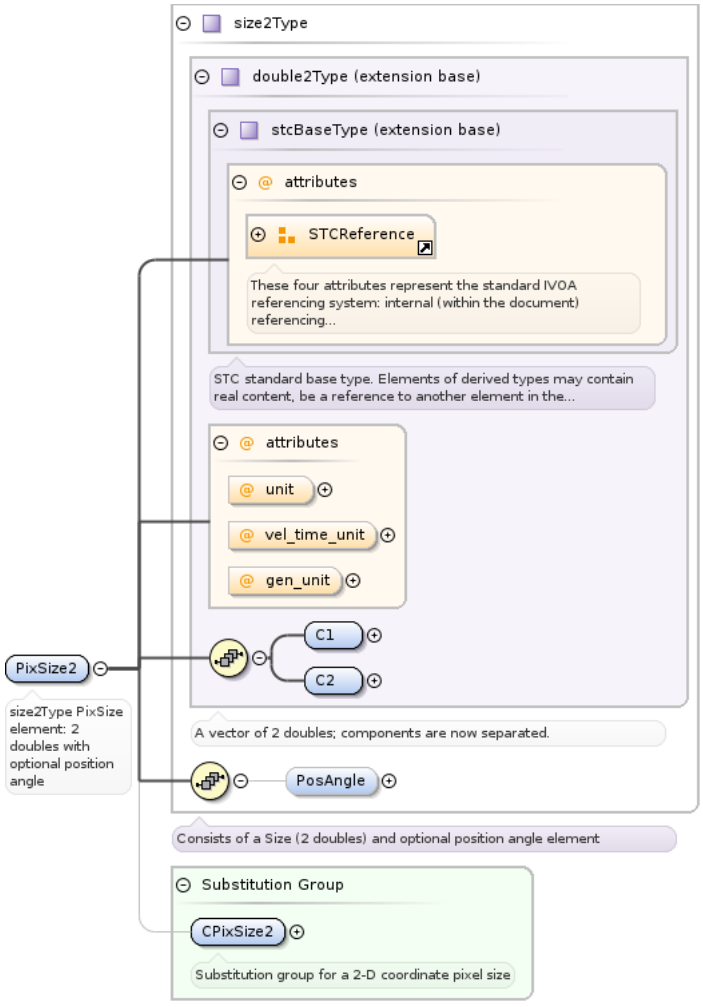
Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Element CPixSize2

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Substitution group for a 2-D coordinate pixel size |
| Diagram |  |
| Properties | abstract: `true` |

| | |
|---|---|
| Substitution Group | • PixSize2<br>• PixSize2Matrix |
| Substitution Group Affiliation | • CPixSize |
| Used by | Complex Types genVector2CoordinateType, posVector2CoordinateType, vector2CoordinateType, velVector2CoordinateType |
| Source | <xs:element name="CPixSize2" type="xs:anyType" abstract="true" substitutionGroup="CPixSize"><br><xs:annotation><br><xs:documentation>Substitution group for a 2-D coordinate pixel size</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element PixSize2

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | size2Type PixSize element: 2 doubles with optional position angle |
| Diagram |  |
| Type | size2Type |
| Type hierarchy | • stcBaseType<br>• double2Type<br>• size2Type |
| Properties | content: complex<br>nillable: true |

| | |
|---|---|
| Substitution Group Affiliation | • CPixSize2 |
| Model | C1 , C2 , PosAngle{0,1} |
| Children | C1, C2, PosAngle |
| Instance | <PixSize2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" u<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <C1 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C1><br>  <C2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C2><br>  <PosAngle xlink:href="" id="" ID_type="" idref="" IDREF_type="" reference="X" xlink:type="simple" ucd=<br>PosAngle><br></PixSize2> |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

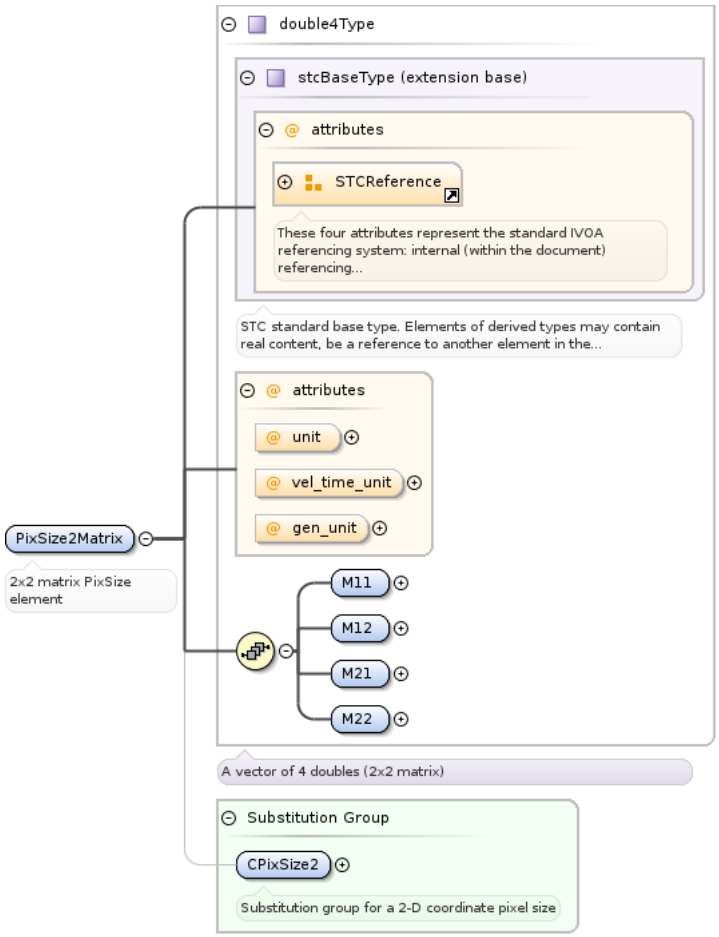
Source

```
<xs:element name="PixSize2" type="size2Type" substitutionGroup="CPixSize2"
 nillable="true">
  <xs:annotation>
    <xs:documentation>size2Type PixSize element: 2 doubles with optional position angle</
xs:documentation>
  </xs:annotation>
</xs:element>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Element PixSize2Matrix

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | 2x2 matrix PixSize element |

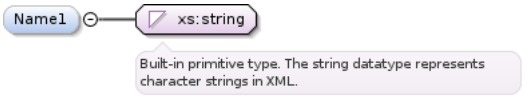
| | |
|---|---|
| Diagram |  |
| Type | double4Type |
| Type hierarchy | • stcBaseType<br>  • double4Type |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • CPixSize2 |
| Model | M11 , M12 , M21 , M22 |
| Children | M11, M12, M21, M22 |
| Instance | <PixSize2Matrix gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" uc<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <M11>{1,1}</M11><br>  <M12>{1,1}</M12><br>  <M21>{1,1}</M21><br>  <M22>{1,1}</M22><br></PixSize2Matrix> |

Attributes

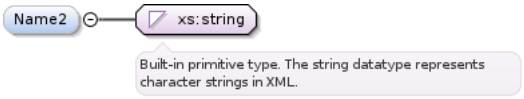
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |

| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |
| Source | <xs:element name="PixSize2Matrix" type="double4Type" substitutionGroup="CPixSize2" nillable="true"> <xs:annotation> <xs:documentation>2x2 matrix PixSize element</xs:documentation> </xs:annotation> </xs:element> | | | | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | | | | |

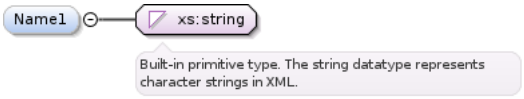
## Element vector2CoordinateType / Name1

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Diagram |   |
| Type | xs:string |
| Properties | content: simple<br>minOccurs: 0 |
| Source | <xs:element name="Name1" type="xs:string" minOccurs="0"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

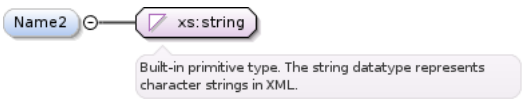
## Element vector2CoordinateType / Name2

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Diagram |   |
| Type | xs:string |
| Properties | content: simple<br>minOccurs: 0 |
| Source | <xs:element name="Name2" type="xs:string" minOccurs="0"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element pixelVector2CoordinateType / Name1

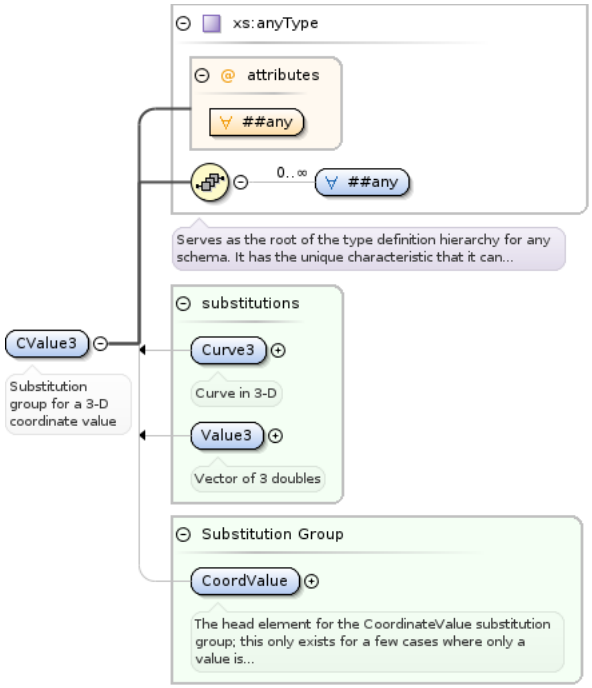
| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Diagram |   |
| Type | xs:string |
| Properties | content: simple<br>minOccurs: 0 |
| Source | <xs:element name="Name1" type="xs:string" minOccurs="0"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element pixelVector2CoordinateType / Name2

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Diagram |   |

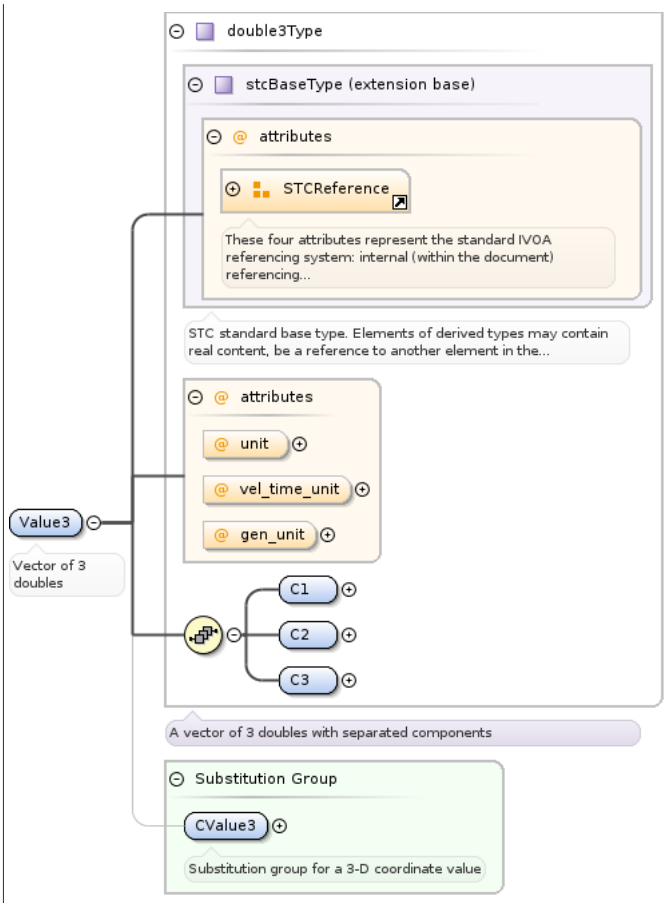
| | |
|---|---|
| Type | xs:string |
| Properties | content: simple<br>minOccurs: 0 |
| Source | `<xs:element name="Name2" type="xs:string" minOccurs="0"/>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element CValue3

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Substitution group for a 3-D coordinate value |
| Diagram |  |
| Properties | abstract: true |
| Substitution Group | • Value3<br>• Curve3 |
| Substitution Group Affiliation | • CoordValue |
| Used by | Complex Types: genVector3CoordinateType, posVector3CoordinateType, vector3CoordinateType, velVector3CoordinateType |
| Source | `<xs:element name="CValue3" type="xs:anyType" abstract="true" substitutionGroup="CoordValue"><xs:annotation><xs:documentation>Substitution group for a 3-D coordinate value</xs:documentation></xs:annotation></xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element Value3

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Vector of 3 doubles |

| | |
|---|---|
| Diagram |  |
| Type | double3Type |
| Type hierarchy | • stcBaseType<br>  • double3Type |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • CValue3 |
| Used by | Complex Type pixelVector3CoordinateType |
| Model | C1 , C2 , C3 |
| Children | C1, C2, C3 |
| Instance | <Value3 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" uni<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <C1 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C1><br>  <C2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C2><br>  <C3 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C3><br></Value3> |

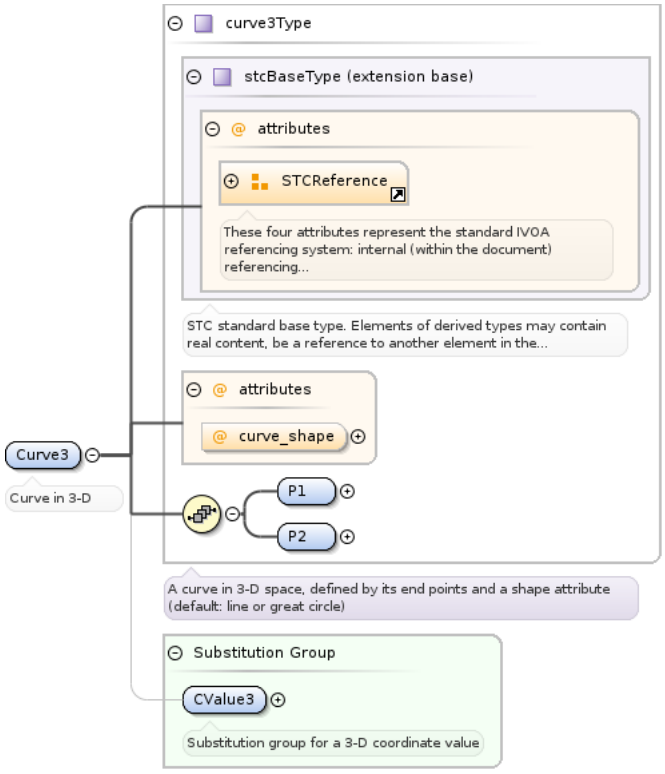
Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |

| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

| | |
|---|---|
| Source | <xs:element name="Value3" type="double3Type" substitutionGroup="CValue3" nillable="true"><br><xs:annotation><br><xs:documentation>Vector of 3 doubles</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element Curve3

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Curve in 3-D |
| Diagram |  |
| Type | curve3Type |
| Type hierarchy | • stcBaseType<br>• curve3Type |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • CValue3 |
| Model | P1 , P2 |
| Children | P1, P2 |
| Instance | <Curve3 curve_shape="line" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br><P1 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" unit=<br>P1><br><P2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" unit=<br>P2><br></Curve3> |

| Attributes | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **IDREF_type** | xs:string | | | optional |

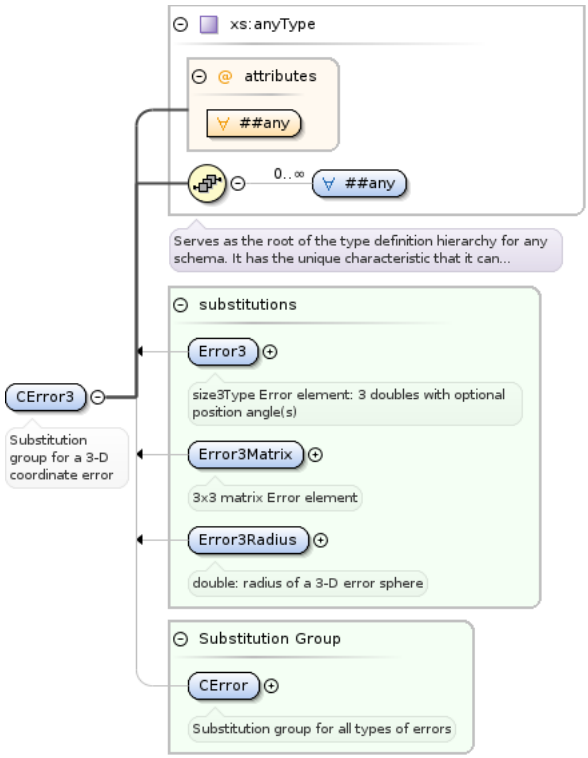
| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **ID_type** | xs:string | | | optional |
| | **curve_shape** | xs:string | | line | optional |
| | **id** | xs:ID | | | optional |
| | **idref** | xs:IDREF | | | optional |
| | **ucd** | xs:string | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:element name="Curve3" type="curve3Type" substitutionGroup="CValue3" nillable="true">
  <xs:annotation>
    <xs:documentation>Curve in 3-D</xs:documentation>
  </xs:annotation>
</xs:element>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Element CError3

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Substitution group for a 3-D coordinate error |
| Diagram |  |
| Properties | abstract: true |
| Substitution Group | • Error3Radius<br>• Error3<br>• Error3Matrix |
| Substitution Group Affiliation | • CError |
| Used by | Complex Types: genVector3CoordinateType, posVector3CoordinateType, vector3CoordinateType, velVector3CoordinateType |

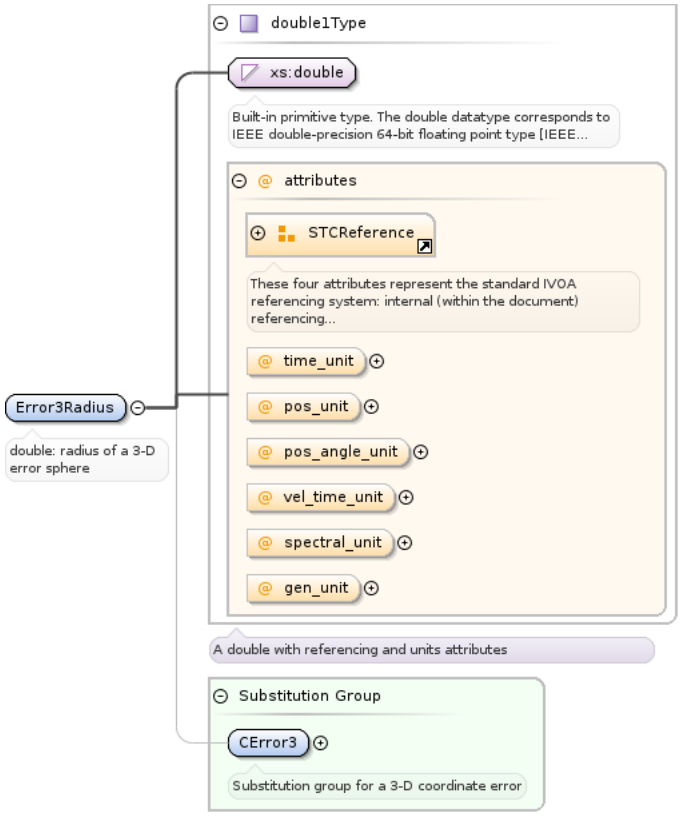


Source

```
<xs:element name="CError3" type="xs:anyType" abstract="true" substitutionGroup="CError">
  <xs:annotation>
    <xs:documentation>Substitution group for a 3-D coordinate error</xs:documentation>
  </xs:annotation>
</xs:element>
```

| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
|---|---|

## Element `Error3Radius`

| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
|---|---|
| Annotations | `double: radius of a 3-D error sphere` |
| Diagram |  |
| Type | double1Type |
| Properties | content: `complex`<br>nillable: `true` |
| `Substitution Group Affiliation` | • CError3 |

Attributes

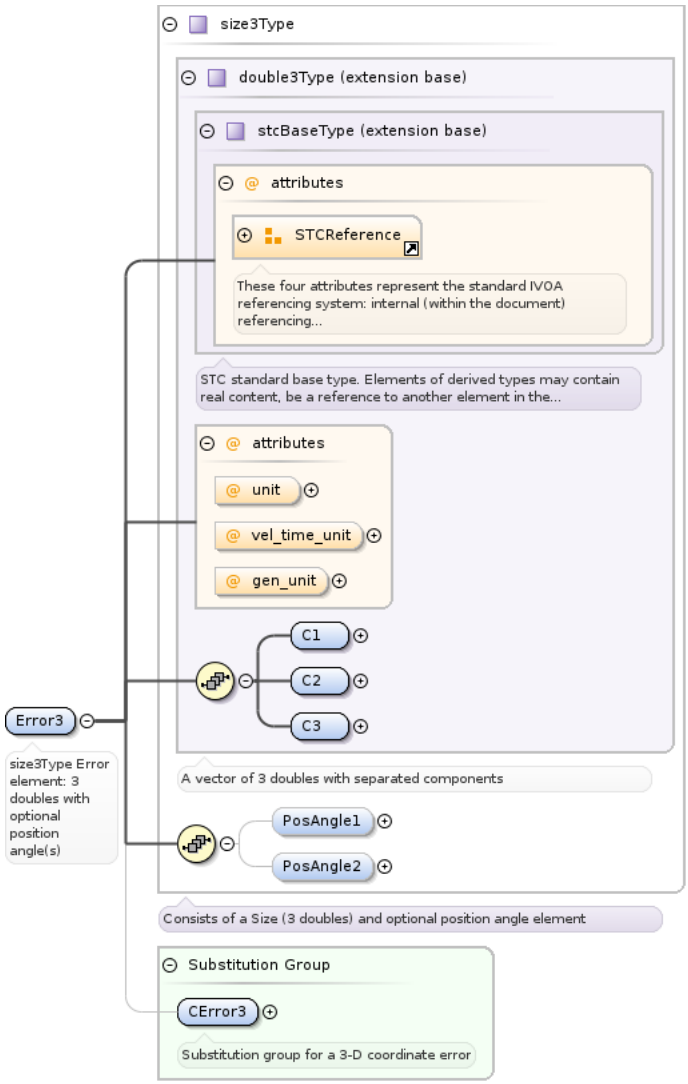
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **pos_angle_unit** | angleUnitType | | | optional |
| **pos_unit** | posUnitType | | | optional |
| **spectral_unit** | spectralUnitType | | | optional |
| **time_unit** | timeUnitType | | | optional |
| **ucd** | xs:string | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:element name="Error3Radius" type="double1Type" substitutionGroup="CError3"
 nillable="true">
  <xs:annotation>
```

| | |
|---|---|
| | <xs:documentation>double: radius of a 3-D error sphere</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

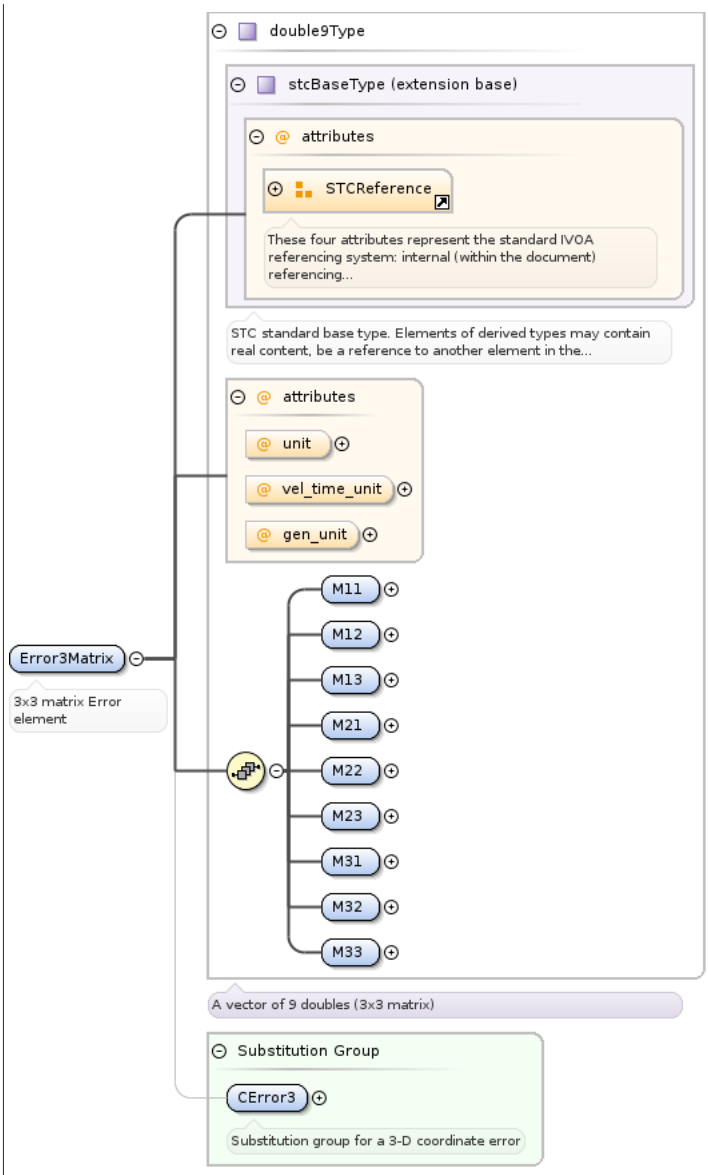
## Element Error3

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | size3Type Error element: 3 doubles with optional position angle(s) |
| Diagram |  |
| Type | size3Type |
| Type hierarchy | • stcBaseType<br>• double3Type<br>• size3Type |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • CError3 |
| Model | C1 , C2 , C3 , PosAngle1{0,1} , PosAngle2{0,1} |
| Children | C1, C2, C3, PosAngle1, PosAngle2 |
| Instance | <Error3 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" uni<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br><C1 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C1> |

<table>
<tr><td></td><td>
<C2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp
C2>
<C3 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp
C3>
<PosAngle1 xlink:href="" id="" ID_type="" idref="" IDREF_type="" reference="X" xlink:type="simple" ucd
PosAngle1>
<PosAngle2 xlink:href="" id="" ID_type="" idref="" IDREF_type="" reference="X" xlink:type="simple" ucd
PosAngle2>
</Error3>
</td></tr>
<tr><td>Attributes</td><td>
<table>
<tr><th>QName</th><th>Type</th><th>Fixed</th><th>Default</th><th>Use</th></tr>
<tr><td>IDREF_type</td><td>xs:string</td><td></td><td></td><td>optional</td></tr>
<tr><td>ID_type</td><td>xs:string</td><td></td><td></td><td>optional</td></tr>
<tr><td>gen_unit</td><td>unitType</td><td></td><td></td><td>optional</td></tr>
<tr><td>id</td><td>xs:ID</td><td></td><td></td><td>optional</td></tr>
<tr><td>idref</td><td>xs:IDREF</td><td></td><td></td><td>optional</td></tr>
<tr><td>ucd</td><td>xs:string</td><td></td><td></td><td>optional</td></tr>
<tr><td>unit</td><td>posUnitType</td><td></td><td></td><td>optional</td></tr>
<tr><td>vel_time_unit</td><td>velTimeUnitType</td><td></td><td></td><td>optional</td></tr>
<tr><td>xlink:href</td><td>xs:anyURI</td><td></td><td></td><td>optional</td></tr>
<tr><td>xlink:type</td><td>restriction of xs:NMTOKEN</td><td></td><td>simple</td><td>optional</td></tr>
</table>
</td></tr>
<tr><td>Source</td><td>
<xs:element name="Error3" type="size3Type" substitutionGroup="CError3" nillable="true">
<xs:annotation>
<xs:documentation>size3Type Error element: 3 doubles with optional position angle(s)</
xs:documentation>
</xs:annotation>
</xs:element>
</td></tr>
<tr><td>Schema location</td><td>http://www.ivoa.net/xml/STC/stc-v1.30.xsd</td></tr>
</table>

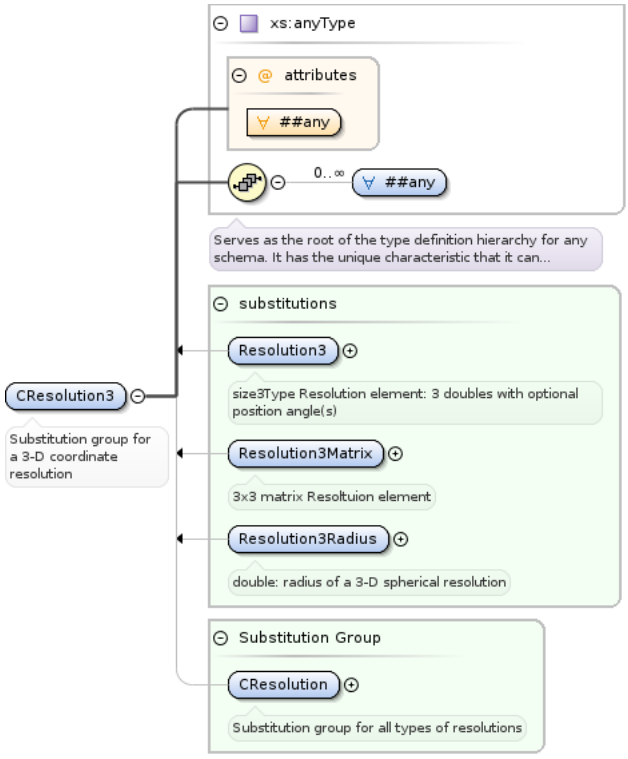
## Element Error3Matrix

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | 3x3 matrix Error element |

| | |
|---|---|
| Diagram |  |
| Type | double9Type |
| Type hierarchy | • stcBaseType<br>  • double9Type |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • CError3 |
| Model | M11 , M12 , M13 , M21 , M22 , M23 , M31 , M32 , M33 |
| Children | M11, M12, M13, M21, M22, M23, M31, M32, M33 |
| Instance | <Error3Matrix gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd=<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <M11>{1,1}</M11><br>  <M12>{1,1}</M12><br>  <M13>{1,1}</M13><br>  <M21>{1,1}</M21><br>  <M22>{1,1}</M22><br>  <M23>{1,1}</M23><br>  <M31>{1,1}</M31><br>  <M32>{1,1}</M32><br>  <M33>{1,1}</M33><br></Error3Matrix> |

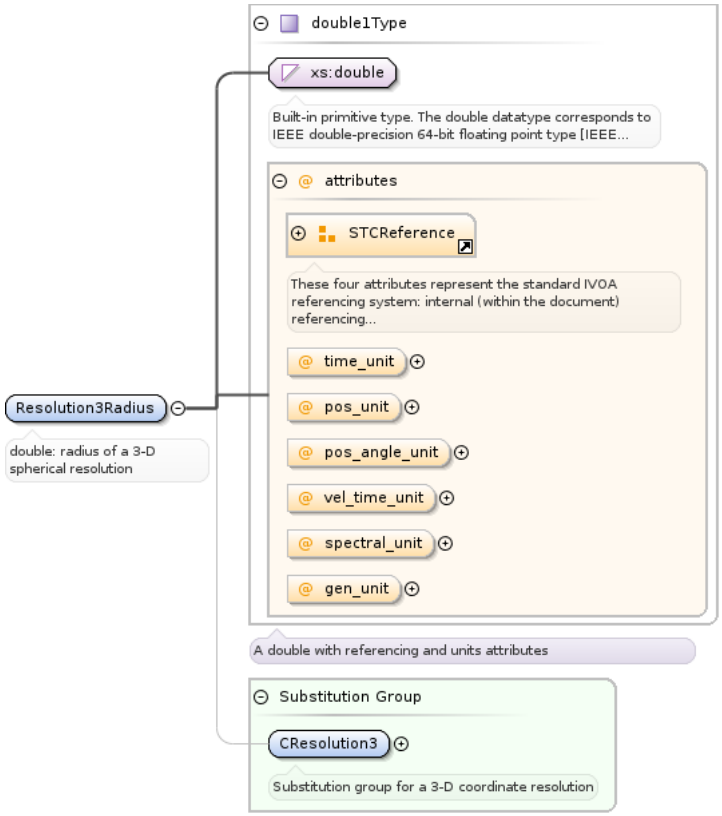
| | | | | | |
|---|---|---|---|---|---|
| Attributes | **QName** | **Type** | **Fixed** | **Default** | **Use** |
| | **IDREF_type** | xs:string | | | optional |
| | **ID_type** | xs:string | | | optional |
| | **gen_unit** | unitType | | | optional |
| | **id** | xs:ID | | | optional |
| | **idref** | xs:IDREF | | | optional |
| | **ucd** | xs:string | | | optional |
| | **unit** | posUnitType | | | optional |
| | **vel_time_unit** | velTimeUnitType | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |
| Source | <xs:element name="Error3Matrix" type="double9Type" substitutionGroup="CError3" nillable="true"> <xs:annotation> <xs:documentation>3x3 matrix Error element</xs:documentation> </xs:annotation> </xs:element> | | | | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | | | | |

## Element CResolution3

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Substitution group for a 3-D coordinate resolution |
| Diagram |   |
| Properties | abstract: true | |
| Substitution Group | • Resolution3Radius<br>• Resolution3<br>• Resolution3Matrix | |
| Substitution Group Affiliation | • CResolution | |
| Used by | Complex Types | genVector3CoordinateType, posVector3CoordinateType, vector3CoordinateType, velVector3CoordinateType |

| | |
|---|---|
| Source | <xs:element name="CResolution3" type="xs:anyType" abstract="true" substitutionGroup="CResolution"><xs:annotation><xs:documentation>Substitution group for a 3-D coordinate resolution</xs:documentation></xs:annotation></xs:element> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element Resolution3Radius

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | double: radius of a 3-D spherical resolution |
| Diagram |  |
| Type | double1Type |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • CResolution3 |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **pos_angle_unit** | angleUnitType | | | optional |
| **pos_unit** | posUnitType | | | optional |
| **spectral_unit** | spectralUnitType | | | optional |
| **time_unit** | timeUnitType | | | optional |
| **ucd** | xs:string | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |

| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:element name="Resolution3Radius" type="double1Type" substitutionGroup="CResolution3"
 nillable="true">
  <xs:annotation>
    <xs:documentation>double: radius of a 3-D spherical resolution</xs:documentation>
  </xs:annotation>
</xs:element>
```

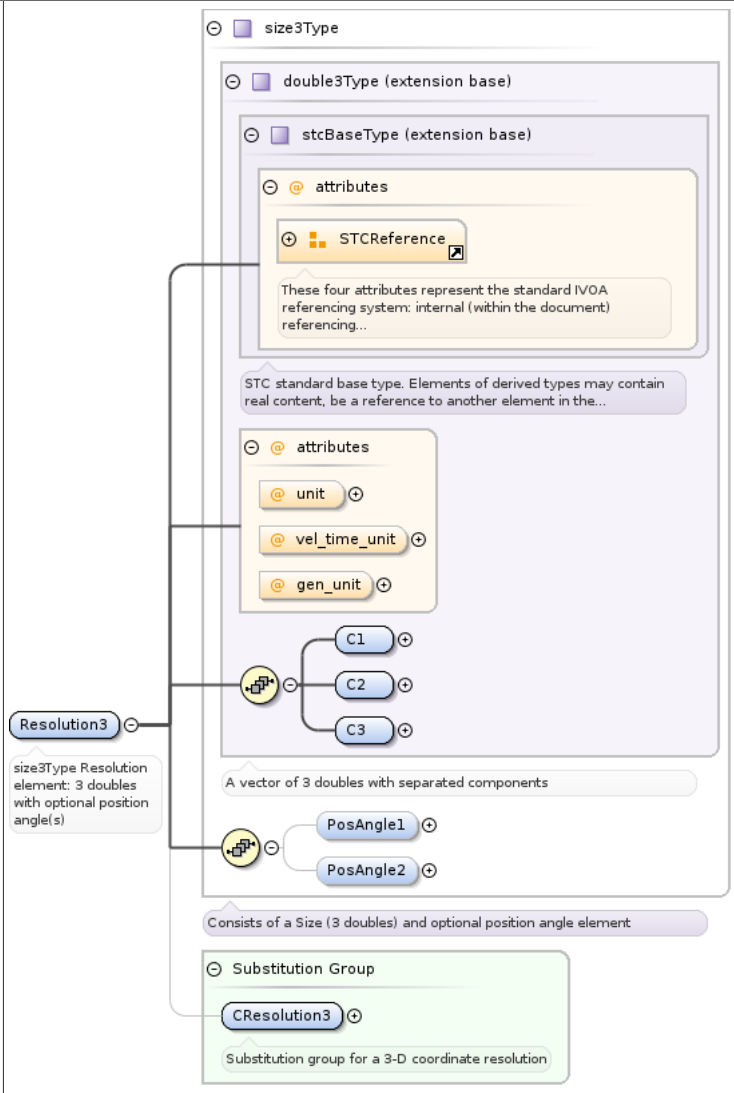
Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Element `Resolution3`

Namespace: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

Annotations: `size3Type Resolution element: 3 doubles with optional position angle(s)`

Diagram




Type: size3Type

Type hierarchy:

- stcBaseType
  - double3Type
    - size3Type

Properties

| | |
|---|---|
| content: | `complex` |
| nillable: | `true` |

Substitution Group Affiliation

- CResolution3

| | |
|---|---|
| Model | C1 , C2 , C3 , PosAngle1{0,1} , PosAngle2{0,1} |
| Children | C1, C2, C3, PosAngle1, PosAngle2 |
| `Instance` | `<Resolution3 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <C1 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp C1>`<br>`  <C2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp C2>`<br>`  <C3 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp C3>`<br>`  <PosAngle1 xlink:href="" id="" ID_type="" idref="" IDREF_type="" reference="X" xlink:type="simple" ucd PosAngle1>`<br>`  <PosAngle2 xlink:href="" id="" ID_type="" idref="" IDREF_type="" reference="X" xlink:type="simple" ucd PosAngle2>`<br>`</Resolution3>` |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

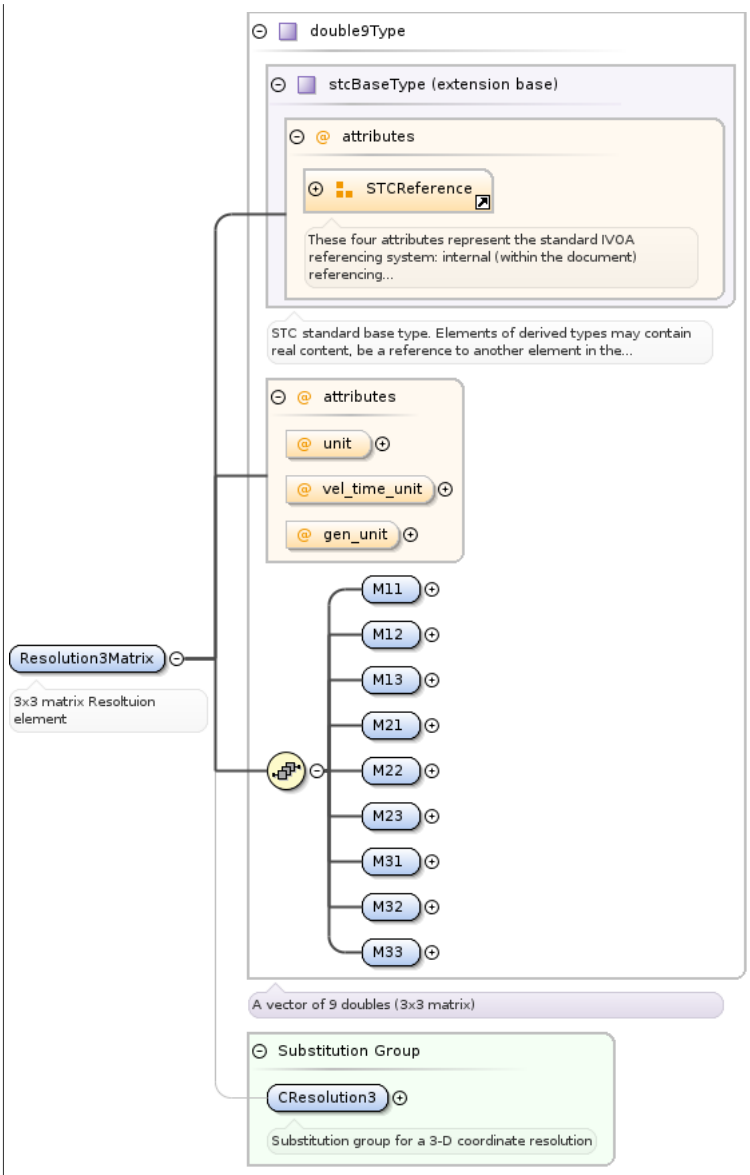
`Source`

```
<xs:element name="Resolution3" type="size3Type" substitutionGroup="CResolution3"
 nillable="true">
  <xs:annotation>
    <xs:documentation>size3Type Resolution element: 3 doubles with optional position
 angle(s)</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

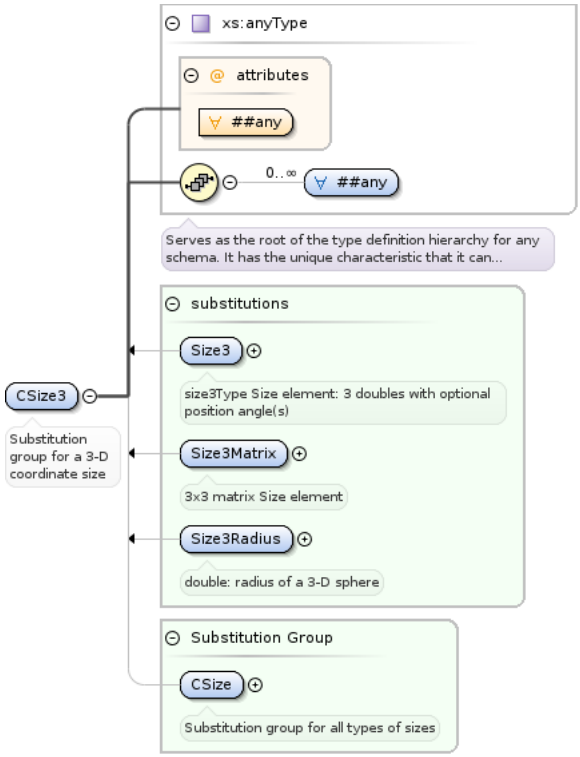
## Element `Resolution3Matrix`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `3x3 matrix Resoltuion element` |

| | |
|---|---|
| Diagram |  |
| Type | double9Type |
| Type hierarchy | • stcBaseType<br>  • double9Type |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • CResolution3 |
| Model | M11 , M12 , M13 , M21 , M22 , M23 , M31 , M32 , M33 |
| Children | M11, M12, M13, M21, M22, M23, M31, M32, M33 |
| Instance | <Resolution3Matrix gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple"<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <M11>{1,1}</M11><br>  <M12>{1,1}</M12><br>  <M13>{1,1}</M13><br>  <M21>{1,1}</M21><br>  <M22>{1,1}</M22><br>  <M23>{1,1}</M23><br>  <M31>{1,1}</M31><br>  <M32>{1,1}</M32><br>  <M33>{1,1}</M33><br></Resolution3Matrix> |

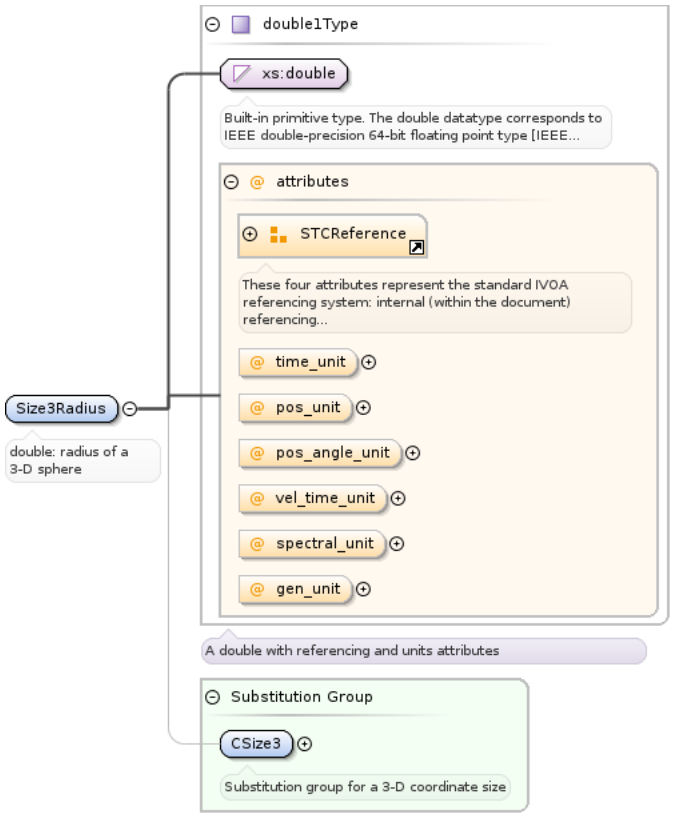
| | | | | | |
|---|---|---|---|---|---|
| Attributes | **QName** | **Type** | **Fixed** | **Default** | **Use** |
| | **IDREF_type** | xs:string | | | optional |
| | **ID_type** | xs:string | | | optional |
| | **gen_unit** | unitType | | | optional |
| | **id** | xs:ID | | | optional |
| | **idref** | xs:IDREF | | | optional |
| | **ucd** | xs:string | | | optional |
| | **unit** | posUnitType | | | optional |
| | **vel_time_unit** | velTimeUnitType | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |
| Source | <xs:element name="Resolution3Matrix" type="double9Type" substitutionGroup="CResolution3" nillable="true"><br><xs:annotation><br><xs:documentation>3x3 matrix Resoltuion element</xs:documentation><br></xs:annotation><br></xs:element> | | | | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | | | | |

## Element CSize3

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Substitution group for a 3-D coordinate size |
| Diagram |  |
| Properties | abstract: true | |
| Substitution Group | • Size3Radius<br>• Size3<br>• Size3Matrix | |
| Substitution Group Affiliation | • CSize | |
| Used by | Complex Types | genVector3CoordinateType, posVector3CoordinateType, vector3CoordinateType, velVector3CoordinateType |

| | |
|---|---|
| Source | <xs:element name="CSize3" type="xs:anyType" abstract="true" substitutionGroup="CSize"><br>  <xs:annotation><br>  <xs:documentation>Substitution group for a 3-D coordinate size</xs:documentation><br>  </xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element Size3Radius

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | double: radius of a 3-D sphere |
| Diagram |  |
| Type | double1Type |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • CSize3 |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **pos_angle_unit** | angleUnitType | | | optional |
| **pos_unit** | posUnitType | | | optional |
| **spectral_unit** | spectralUnitType | | | optional |
| **time_unit** | timeUnitType | | | optional |
| **ucd** | xs:string | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |

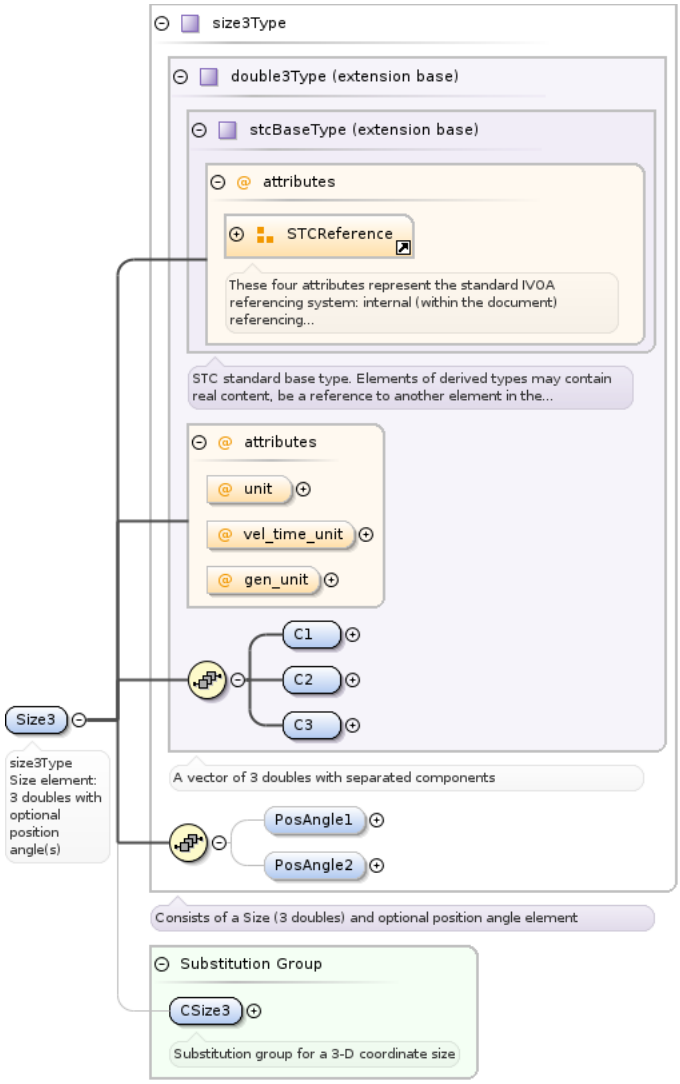
| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:element name="Size3Radius" type="double1Type" substitutionGroup="CSize3"
 nillable="true">
  <xs:annotation>
    <xs:documentation>double: radius of a 3-D sphere</xs:documentation>
  </xs:annotation>
</xs:element>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Element Size3

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | size3Type Size element: 3 doubles with optional position angle(s) |
| Diagram |  |
| Type | size3Type |
| Type hierarchy | • stcBaseType<br>  • double3Type<br>  • size3Type |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • CSize3 |

| | |
|---|---|
| Model | C1 , C2 , C3 , PosAngle1{0,1} , PosAngle2{0,1} |
| Children | C1, C2, C3, PosAngle1, PosAngle2 |
| Instance | <Size3 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" unit<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <C1 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C1><br>  <C2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C2><br>  <C3 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C3><br>  <PosAngle1 xlink:href="" id="" ID_type="" idref="" IDREF_type="" reference="X" xlink:type="simple" ucd<br>PosAngle1><br>  <PosAngle2 xlink:href="" id="" ID_type="" idref="" IDREF_type="" reference="X" xlink:type="simple" ucd<br>PosAngle2><br></Size3> |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

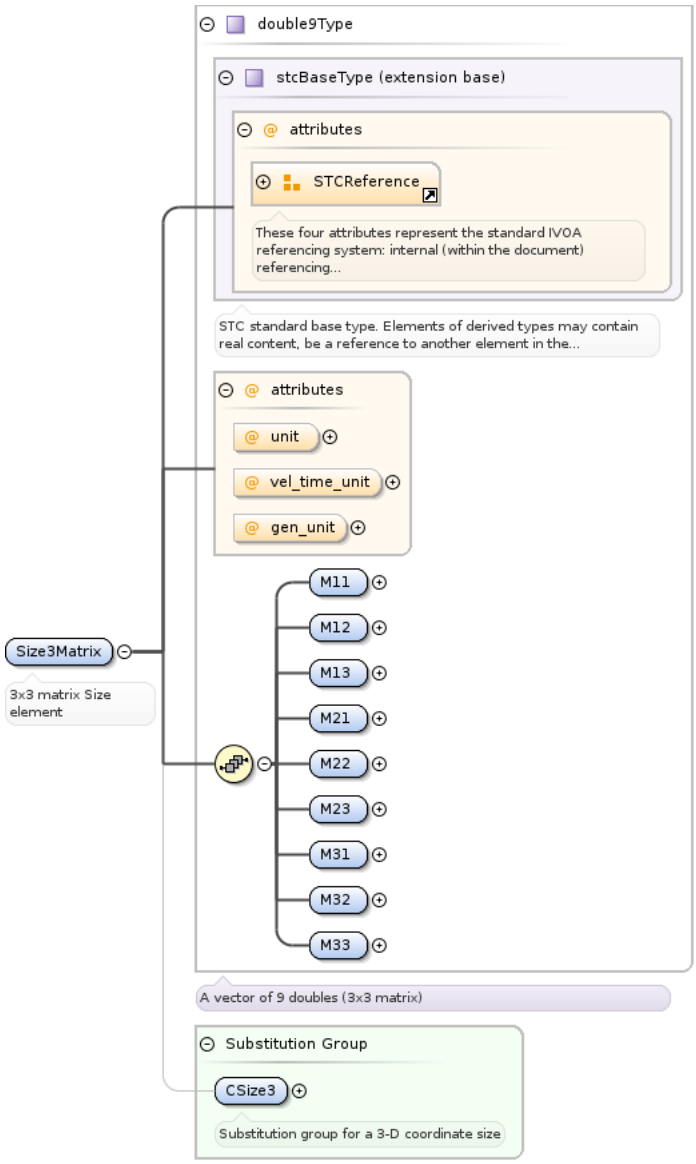
Source

```
<xs:element name="Size3" type="size3Type" substitutionGroup="CSize3" nillable="true">
  <xs:annotation>
    <xs:documentation>size3Type Size element: 3 doubles with optional position angle(s)</
xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

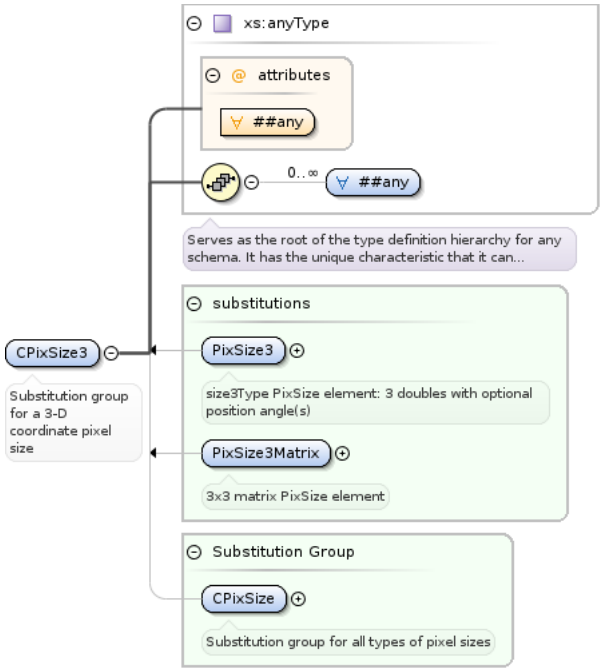
## Element Size3Matrix

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | 3x3 matrix Size element |

| | |
|---|---|
| Diagram |  |
| Type | double9Type |
| Type hierarchy | • stcBaseType<br>  • double9Type |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • CSize3 |
| Model | M11 , M12 , M13 , M21 , M22 , M23 , M31 , M32 , M33 |
| Children | M11, M12, M13, M21, M22, M23, M31, M32, M33 |
| Instance | <Size3Matrix gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <M11>{1,1}</M11><br>  <M12>{1,1}</M12><br>  <M13>{1,1}</M13><br>  <M21>{1,1}</M21><br>  <M22>{1,1}</M22><br>  <M23>{1,1}</M23><br>  <M31>{1,1}</M31><br>  <M32>{1,1}</M32><br>  <M33>{1,1}</M33><br></Size3Matrix> |

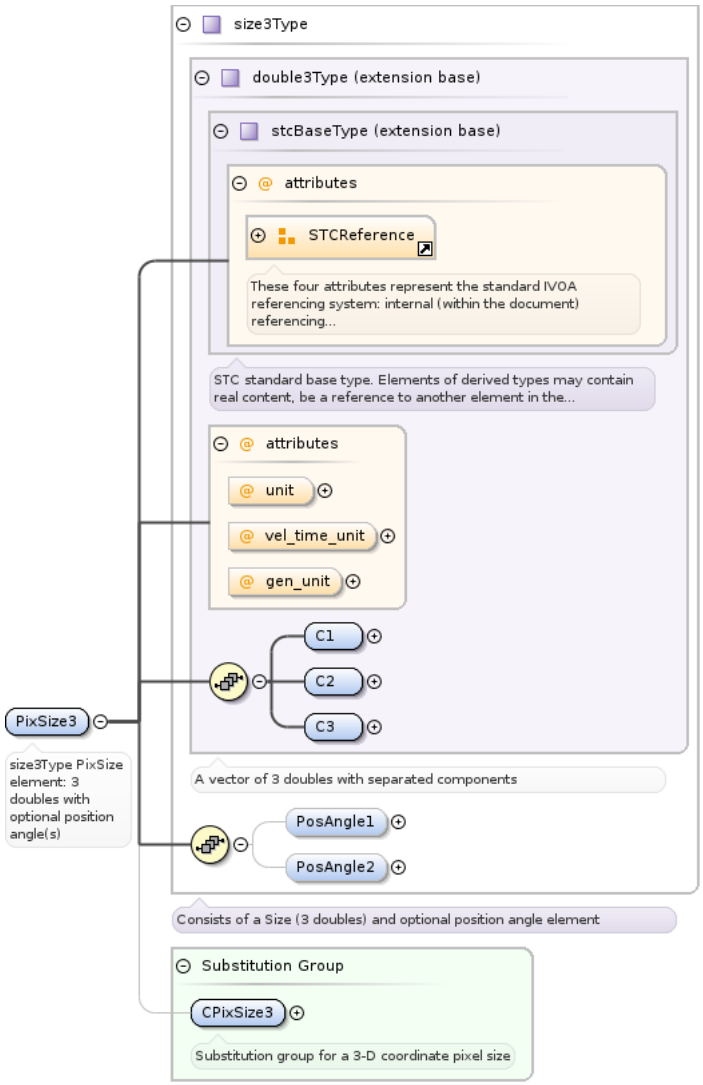
| | | | | | |
|---|---|---|---|---|---|
| Attributes | **QName** | **Type** | **Fixed** | **Default** | **Use** |
| | **IDREF_type** | xs:string | | | optional |
| | **ID_type** | xs:string | | | optional |
| | **gen_unit** | unitType | | | optional |
| | **id** | xs:ID | | | optional |
| | **idref** | xs:IDREF | | | optional |
| | **ucd** | xs:string | | | optional |
| | **unit** | posUnitType | | | optional |
| | **vel_time_unit** | velTimeUnitType | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |
| Source | <xs:element name="Size3Matrix" type="double9Type" substitutionGroup="CSize3" nillable="true"> <xs:annotation> <xs:documentation>3x3 matrix Size element</xs:documentation> </xs:annotation> </xs:element> | | | | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | | | | |

## Element CPixSize3

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Substitution group for a 3-D coordinate pixel size |
| Diagram |   |
| Properties | abstract: true | |
| Substitution Group | • PixSize3<br>• PixSize3Matrix | |
| Substitution Group Affiliation | • CPixSize | |
| Used by | Complex Types | genVector3CoordinateType, posVector3CoordinateType, vector3CoordinateType, velVector3CoordinateType |
| Source | <xs:element name="CPixSize3" type="xs:anyType" abstract="true" substitutionGroup="CPixSize"> <xs:annotation> <xs:documentation>Substitution group for a 3-D coordinate pixel size</xs:documentation> | |

| | |
|---|---|
| | </xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

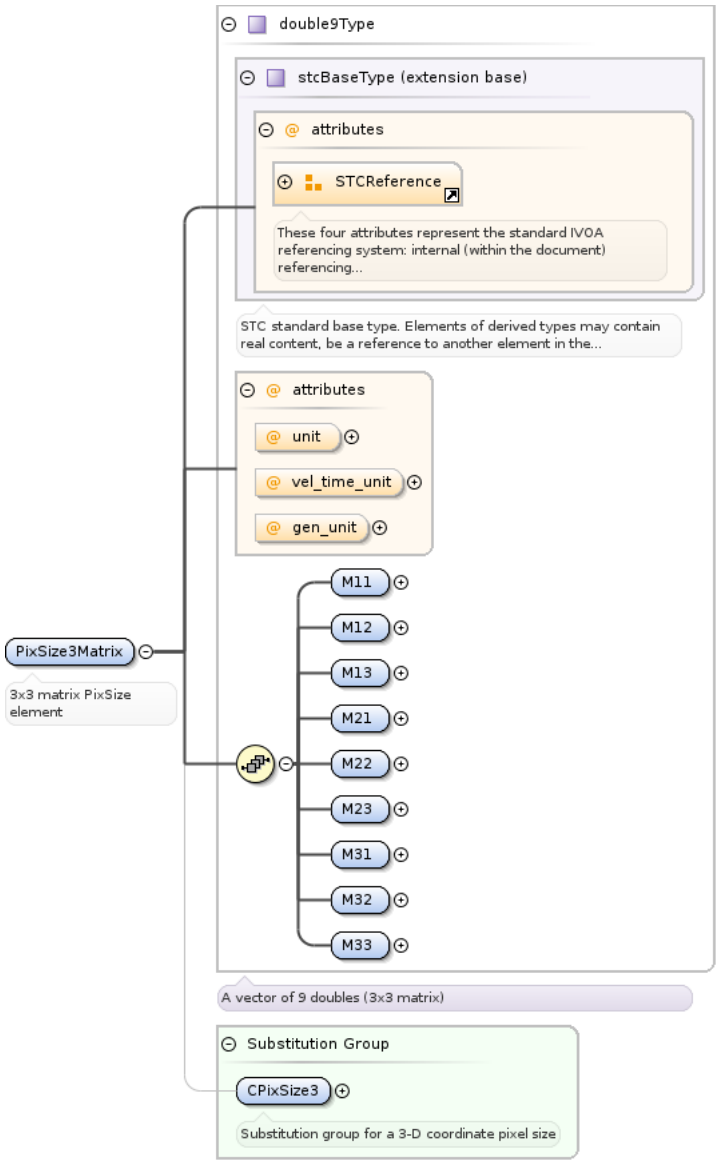
## Element PixSize3

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | size3Type PixSize element: 3 doubles with optional position angle(s) |
| Diagram |  |
| Type | size3Type |
| Type hierarchy | • stcBaseType<br>  • double3Type<br>  • size3Type |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • CPixSize3 |
| Model | C1 , C2 , C3 , PosAngle1{0,1} , PosAngle2{0,1} |
| Children | C1, C2, C3, PosAngle1, PosAngle2 |
| Instance | <PixSize3 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" u<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <C1 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C1><br>  <C2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C2> |

<table>
<tr><td></td><td><pre>  <C3 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp
C3>
  <PosAngle1 xlink:href="" id="" ID_type="" idref="" IDREF_type="" reference="X" xlink:type="simple" ucd
PosAngle1>
  <PosAngle2 xlink:href="" id="" ID_type="" idref="" IDREF_type="" reference="X" xlink:type="simple" ucd
PosAngle2>
</PixSize3></pre></td></tr>
<tr><td>Attributes</td><td>
<table>
<tr><th>QName</th><th>Type</th><th>Fixed</th><th>Default</th><th>Use</th></tr>
<tr><td>IDREF_type</td><td>xs:string</td><td></td><td></td><td>optional</td></tr>
<tr><td>ID_type</td><td>xs:string</td><td></td><td></td><td>optional</td></tr>
<tr><td>gen_unit</td><td>unitType</td><td></td><td></td><td>optional</td></tr>
<tr><td>id</td><td>xs:ID</td><td></td><td></td><td>optional</td></tr>
<tr><td>idref</td><td>xs:IDREF</td><td></td><td></td><td>optional</td></tr>
<tr><td>ucd</td><td>xs:string</td><td></td><td></td><td>optional</td></tr>
<tr><td>unit</td><td>posUnitType</td><td></td><td></td><td>optional</td></tr>
<tr><td>vel_time_unit</td><td>velTimeUnitType</td><td></td><td></td><td>optional</td></tr>
<tr><td>xlink:href</td><td>xs:anyURI</td><td></td><td></td><td>optional</td></tr>
<tr><td>xlink:type</td><td>restriction of xs:NMTOKEN</td><td></td><td>simple</td><td>optional</td></tr>
</table>
</td></tr>
<tr><td>Source</td><td><pre><xs:element name="PixSize3" type="size3Type" substitutionGroup="CPixSize3"
 nillable="true">
  <xs:annotation>
    <xs:documentation>size3Type PixSize element: 3 doubles with optional position
 angle(s)</xs:documentation>
  </xs:annotation>
</xs:element></pre></td></tr>
<tr><td>Schema location</td><td>http://www.ivoa.net/xml/STC/stc-v1.30.xsd</td></tr>
</table>

## Element PixSize3Matrix

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | 3x3 matrix PixSize element |

| | |
|---|---|
| Diagram |  |
| Type | double9Type |
| Type hierarchy | • stcBaseType<br>  • double9Type |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • CPixSize3 |
| Model | M11 , M12 , M13 , M21 , M22 , M23 , M31 , M32 , M33 |
| Children | M11, M12, M13, M21, M22, M23, M31, M32, M33 |
| Instance | <PixSize3Matrix gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" uc<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <M11>{1,1}</M11><br>  <M12>{1,1}</M12><br>  <M13>{1,1}</M13><br>  <M21>{1,1}</M21><br>  <M22>{1,1}</M22><br>  <M23>{1,1}</M23><br>  <M31>{1,1}</M31><br>  <M32>{1,1}</M32><br>  <M33>{1,1}</M33><br></PixSize3Matrix> |

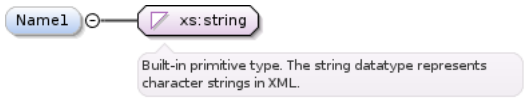
| Attributes | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **IDREF_type** | xs:string | | | optional |
| | **ID_type** | xs:string | | | optional |
| | **gen_unit** | unitType | | | optional |
| | **id** | xs:ID | | | optional |
| | **idref** | xs:IDREF | | | optional |
| | **ucd** | xs:string | | | optional |
| | **unit** | posUnitType | | | optional |
| | **vel_time_unit** | velTimeUnitType | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

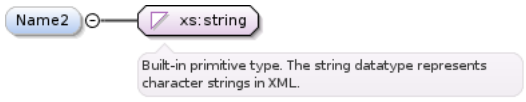
```
<xs:element name="PixSize3Matrix" type="double9Type" substitutionGroup="CPixSize3"
 nillable="true">
  <xs:annotation>
    <xs:documentation>3x3 matrix PixSize element</xs:documentation>
  </xs:annotation>
</xs:element>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

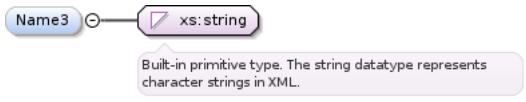
## Element vector3CoordinateType / Name1

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Diagram |   |
| Type | xs:string |
| Properties | content: simple<br>minOccurs: 0 |
| Source | `<xs:element name="Name1" type="xs:string" minOccurs="0"/>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element vector3CoordinateType / Name2

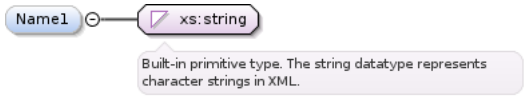
| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Diagram |   |
| Type | xs:string |
| Properties | content: simple<br>minOccurs: 0 |
| Source | `<xs:element name="Name2" type="xs:string" minOccurs="0"/>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element vector3CoordinateType / Name3

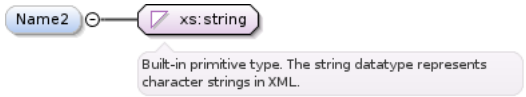
| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Diagram |   |
| Type | xs:string |
| Properties | content: simple |

| | |
|---|---|
| | minOccurs: 0 |
| Source | <xs:element name="Name3" type="xs:string" minOccurs="0"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

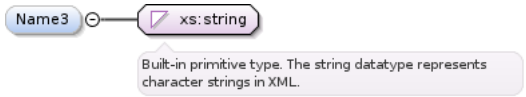
## Element pixelVector3CoordinateType / Name1

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Diagram |  |
| Type | xs:string |
| Properties | content: simple<br>minOccurs: 0 |
| Source | <xs:element name="Name1" type="xs:string" minOccurs="0"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

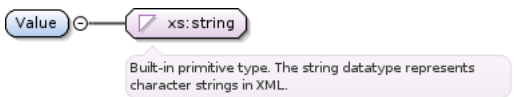
## Element pixelVector3CoordinateType / Name2

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Diagram |  |
| Type | xs:string |
| Properties | content: simple<br>minOccurs: 0 |
| Source | <xs:element name="Name2" type="xs:string" minOccurs="0"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

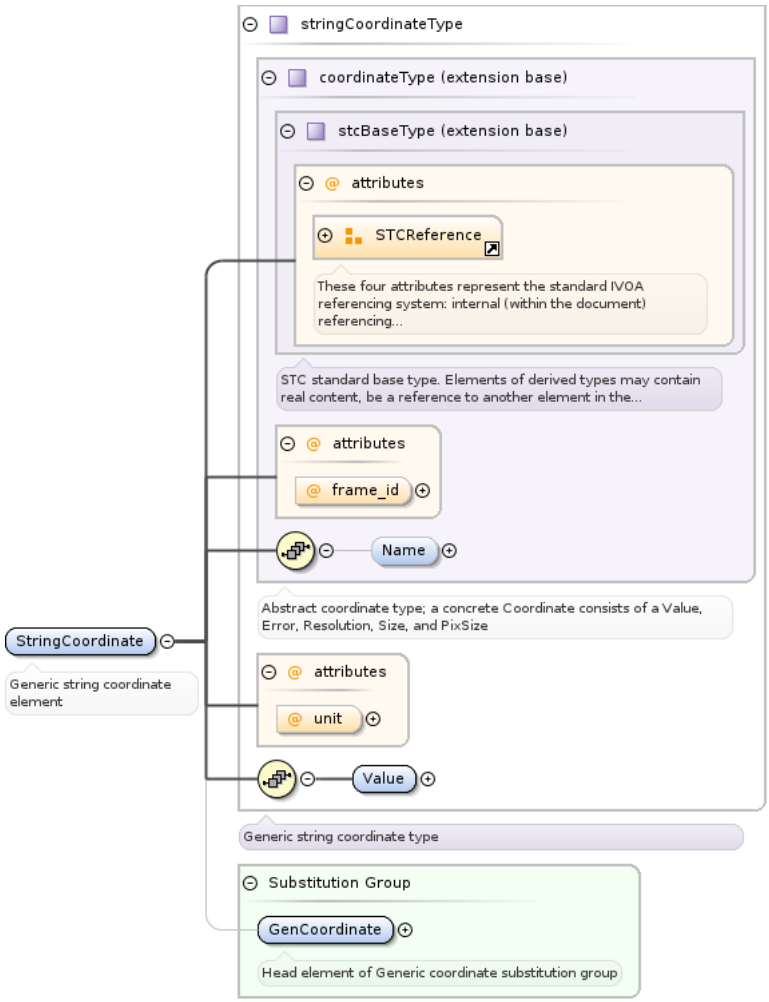
## Element pixelVector3CoordinateType / Name3

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Diagram |  |
| Type | xs:string |
| Properties | content: simple<br>minOccurs: 0 |
| Source | <xs:element name="Name3" type="xs:string" minOccurs="0"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element stringCoordinateType / Value

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Diagram |  |
| Type | xs:string |
| Properties | content: simple |
| Source | <xs:element name="Value" type="xs:string"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `StringCoordinate`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `Generic string coordinate element` |
| Diagram |  |
| Type | stringCoordinateType |
| Type hierarchy | • stcBaseType<br>  • coordinateType<br>  • stringCoordinateType |
| Properties | content: `complex`<br>nillable: `true` |
| `Substitution Group Affiliation` | • GenCoordinate |
| Model | Name{0,1} , Value |
| Children | Name, Value |
| `Instance` | `<StringCoordinate frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Name>{0,1}</Name>`<br>`  <Value>{1,1}</Value>`<br>`</StringCoordinate>` |

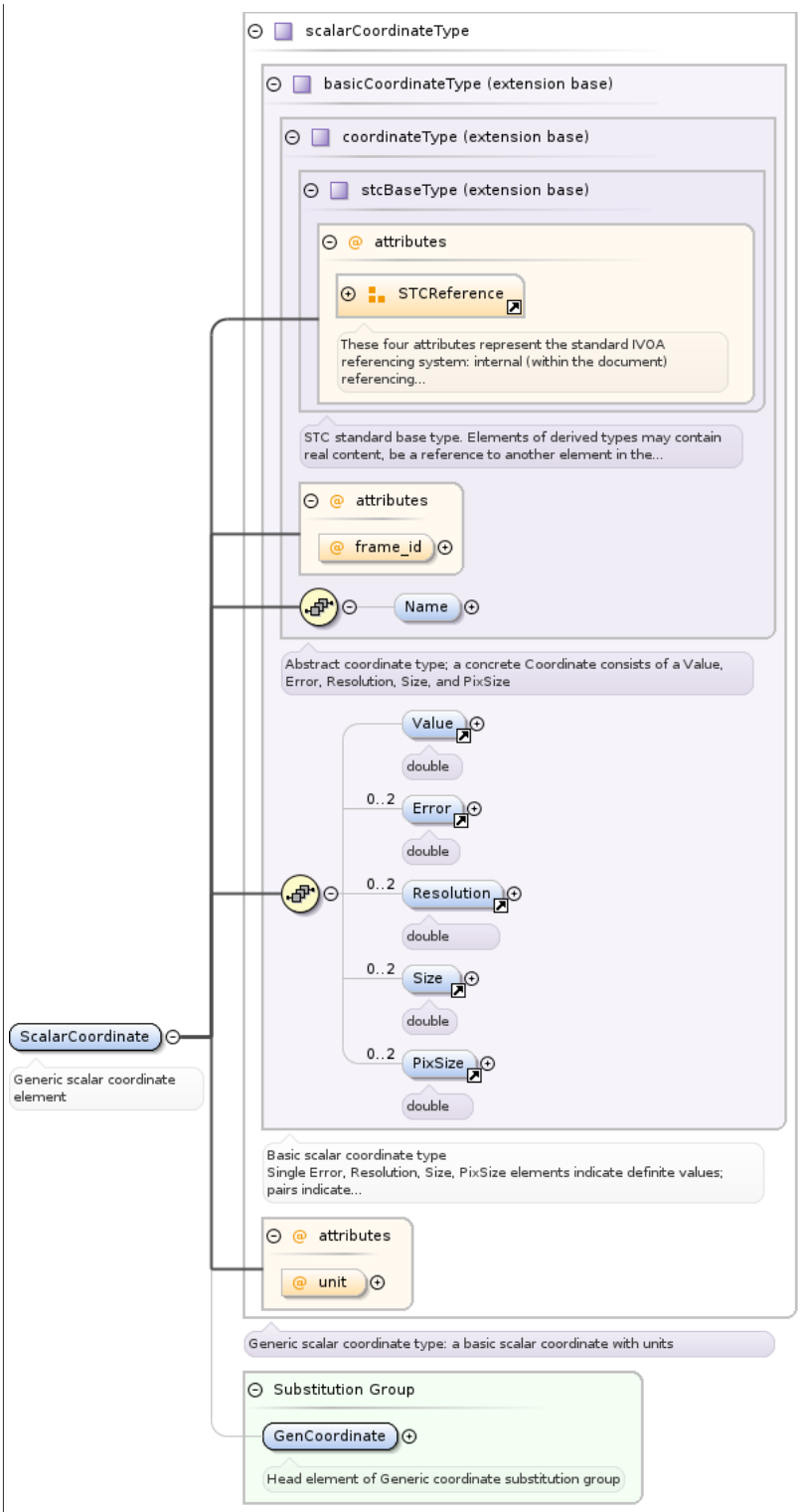
Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **frame_id** | xs:IDREF | | | optional |
| **id** | xs:ID | | | optional |

| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **idref** | xs:IDREF | | | optional |
| | **ucd** | xs:string | | | optional |
| | **unit** | unitType | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |
| Source | <xs:element name="StringCoordinate" type="stringCoordinateType" substitutionGroup="GenCoordinate" nillable="true"> <xs:annotation> <xs:documentation>Generic string coordinate element</xs:documentation> </xs:annotation> </xs:element> | | | | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | | | | |

## Element ScalarCoordinate

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Generic scalar coordinate element |

| | |
|---|---|
| Diagram |  |
| Type | scalarCoordinateType |
| Type hierarchy | • stcBaseType<br>  • coordinateType<br>  • basicCoordinateType<br>  • scalarCoordinateType |
| Properties | content: `complex`<br>nillable: `true` |

| | |
|---|---|
| Substitution Group Affiliation | • GenCoordinate |
| Model | Name{0,1} , Value{0,1} , Error{0,2} , Resolution{0,2} , Size{0,2} , PixSize{0,2} |
| Children | Error, Name, PixSize, Resolution, Size, Value |
| Instance | <ScalarCoordinate frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" www.ivoa.net/xml/STC/stc-v1.30.xsd"><br><Name>{0,1}</Name><br><Value gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" Value><br><Error gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" Error><br><Resolution gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_un Resolution><br><Size gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" Size><br><PixSize gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit= PixSize><br></ScalarCoordinate> |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **frame_id** | xs:IDREF | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | unitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

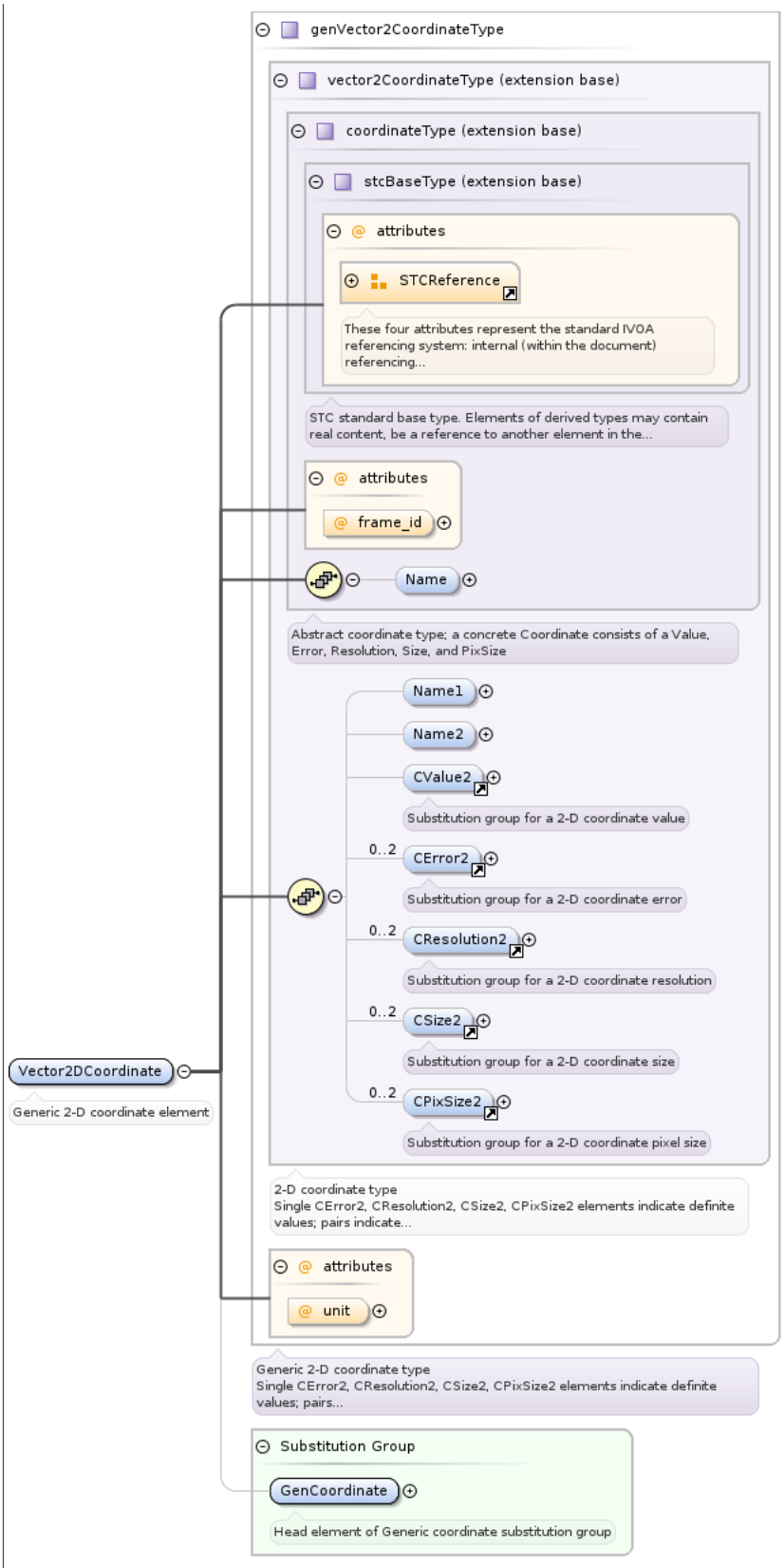
Source

```
<xs:element name="ScalarCoordinate" type="scalarCoordinateType"
 substitutionGroup="GenCoordinate" nillable="true">
  <xs:annotation>
    <xs:documentation>Generic scalar coordinate element</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element Vector2DCoordinate

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Generic 2-D coordinate element |

| | |
|---|---|
| Diagram |  |
| Type | genVector2CoordinateType |
| Type hierarchy | • stcBaseType<br>  • coordinateType<br>  • vector2CoordinateType |

| | |
|---|---|
| | • genVector2CoordinateType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • GenCoordinate |
| Model | Name{0,1} , Name1{0,1} , Name2{0,1} , CValue2{0,1} , CError2{0,2} , CResolution2{0,2} , CSize2{0,2} , CPixSize2{0,2} |
| Children | CError2, CPixSize2, CResolution2, CSize2, CValue2, Name, Name1, Name2 |

Instance

```
<Vector2DCoordinate frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple
www.ivoa.net/xml/STC/stc-v1.30.xsd">
  <Name>{0,1}</Name>
  <Name1>{0,1}</Name1>
  <Name2>{0,1}</Name2>
  <CValue2>{0,1}</CValue2>
  <CError2>{0,2}</CError2>
  <CResolution2>{0,2}</CResolution2>
  <CSize2>{0,2}</CSize2>
  <CPixSize2>{0,2}</CPixSize2>
</Vector2DCoordinate>
```

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **frame_id** | xs:IDREF | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | unitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

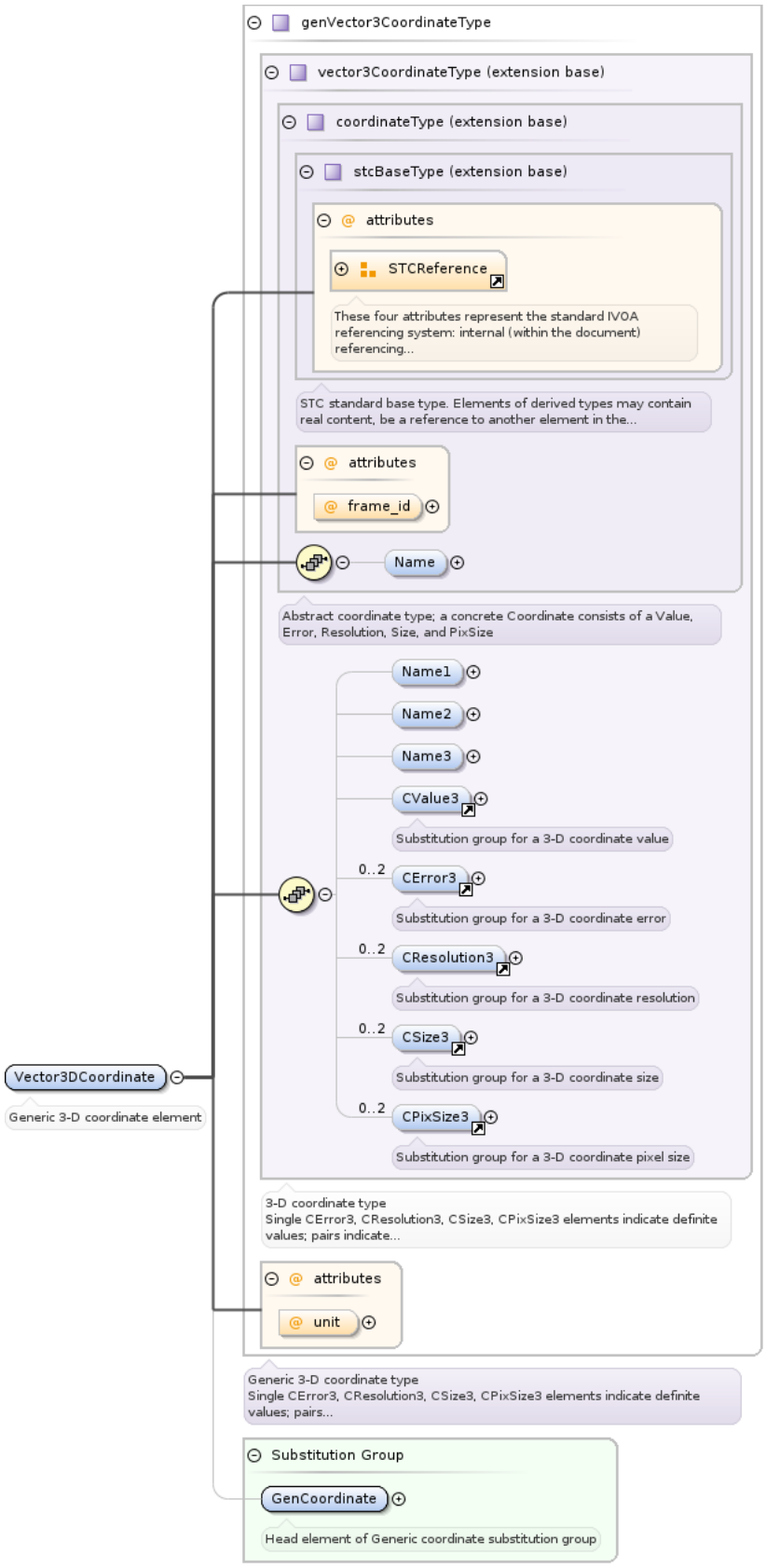
Source

```
<xs:element name="Vector2DCoordinate" type="genVector2CoordinateType"
 substitutionGroup="GenCoordinate" nillable="true">
  <xs:annotation>
    <xs:documentation>Generic 2-D coordinate element</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element Vector3DCoordinate

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Generic 3-D coordinate element |

| | |
|---|---|
| Diagram |  |
| Type | genVector3CoordinateType |
| Type hierarchy | • stcBaseType<br>• coordinateType<br>• vector3CoordinateType |

| | |
|---|---|
| | • genVector3CoordinateType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • GenCoordinate |
| Model | Name{0,1} , Name1{0,1} , Name2{0,1} , Name3{0,1} , CValue3{0,1} , CError3{0,2} , CResolution3{0,2} , CSize3{0,2} , CPixSize3{0,2} |
| Children | CError3, CPixSize3, CResolution3, CSize3, CValue3, Name, Name1, Name2, Name3 |

Instance

```
<Vector3DCoordinate frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple
www.ivoa.net/xml/STC/stc-v1.30.xsd">
  <Name>{0,1}</Name>
  <Name1>{0,1}</Name1>
  <Name2>{0,1}</Name2>
  <Name3>{0,1}</Name3>
  <CValue3>{0,1}</CValue3>
  <CError3>{0,2}</CError3>
  <CResolution3>{0,2}</CResolution3>
  <CSize3>{0,2}</CSize3>
  <CPixSize3>{0,2}</CPixSize3>
</Vector3DCoordinate>
```

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **frame_id** | xs:IDREF | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | unitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

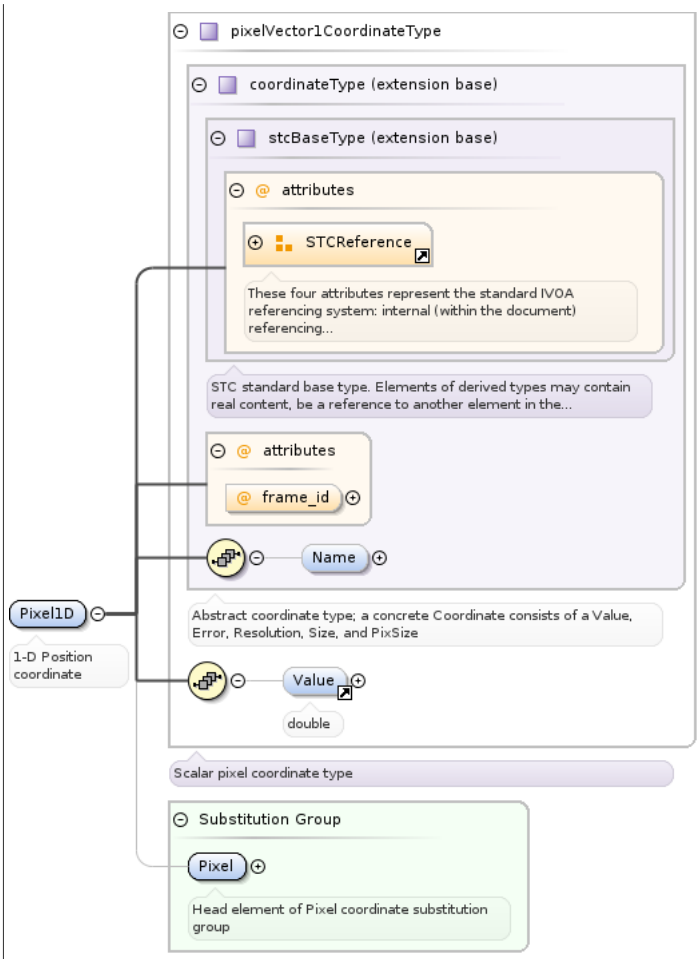
Source

```
<xs:element name="Vector3DCoordinate" type="genVector3CoordinateType"
 substitutionGroup="GenCoordinate" nillable="true">
  <xs:annotation>
    <xs:documentation>Generic 3-D coordinate element</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element Pixel1D

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | 1-D Position coordinate |

| | |
|---|---|
| Diagram |  |
| Type | pixelVector1CoordinateType |
| Type hierarchy | • stcBaseType<br>  • coordinateType<br>  • pixelVector1CoordinateType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • Pixel |
| Model | Name{0,1} , Value{0,1} |
| Children | Name, Value |
| Instance | <Pixel1D frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" xmwww.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <Name>{0,1}</Name><br>  <Value gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit=""Value><br></Pixel1D> |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **frame_id** | xs:IDREF | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |

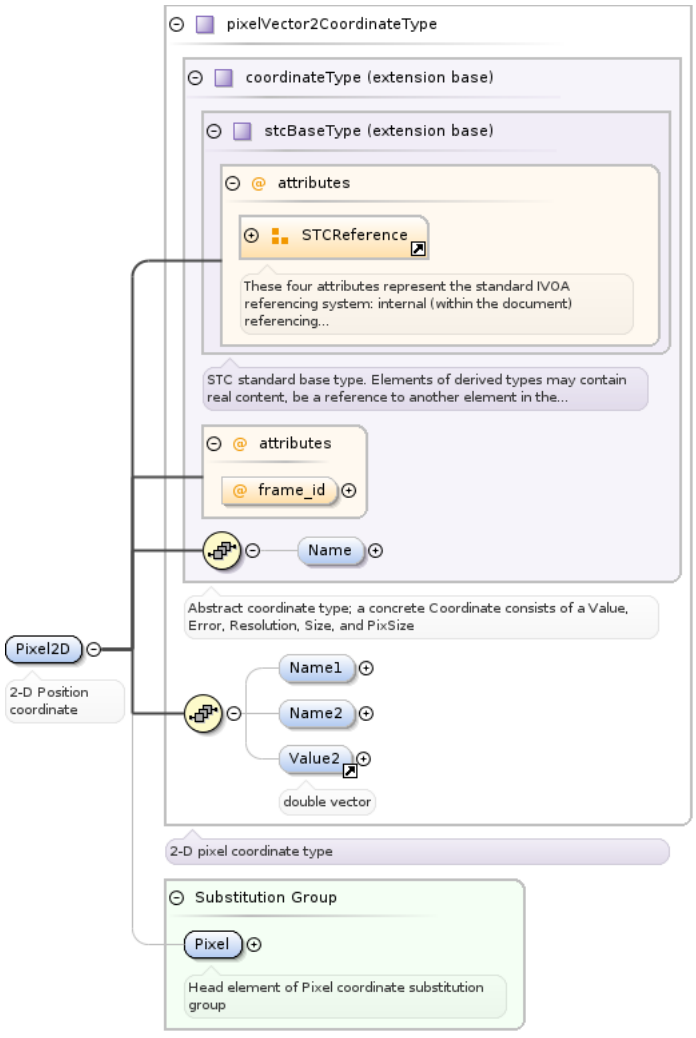
| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:element name="Pixel1D" type="pixelVector1CoordinateType" substitutionGroup="Pixel"
 nillable="true">
  <xs:annotation>
    <xs:documentation>1-D Position coordinate</xs:documentation>
  </xs:annotation>
</xs:element>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Element `Pixel2D`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `2-D Position coordinate` |
| Diagram |  |
| Type | pixelVector2CoordinateType |
| Type hierarchy | • stcBaseType<br>  • coordinateType<br>  • pixelVector2CoordinateType |
| Properties | content: `complex`<br>nillable: `true` |
| `Substitution Group Affiliation` | • Pixel |
| Model | Name{0,1} , Name1{0,1} , Name2{0,1} , Value2{0,1} |

| | |
|---|---|
| Children | Name, Name1, Name2, Value2 |
| Instance | <Pixel2D frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" xm<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <Name>{0,1}</Name><br>  <Name1>{0,1}</Name1><br>  <Name2>{0,1}</Name2><br>  <Value2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" u<br>Value2><br></Pixel2D> |

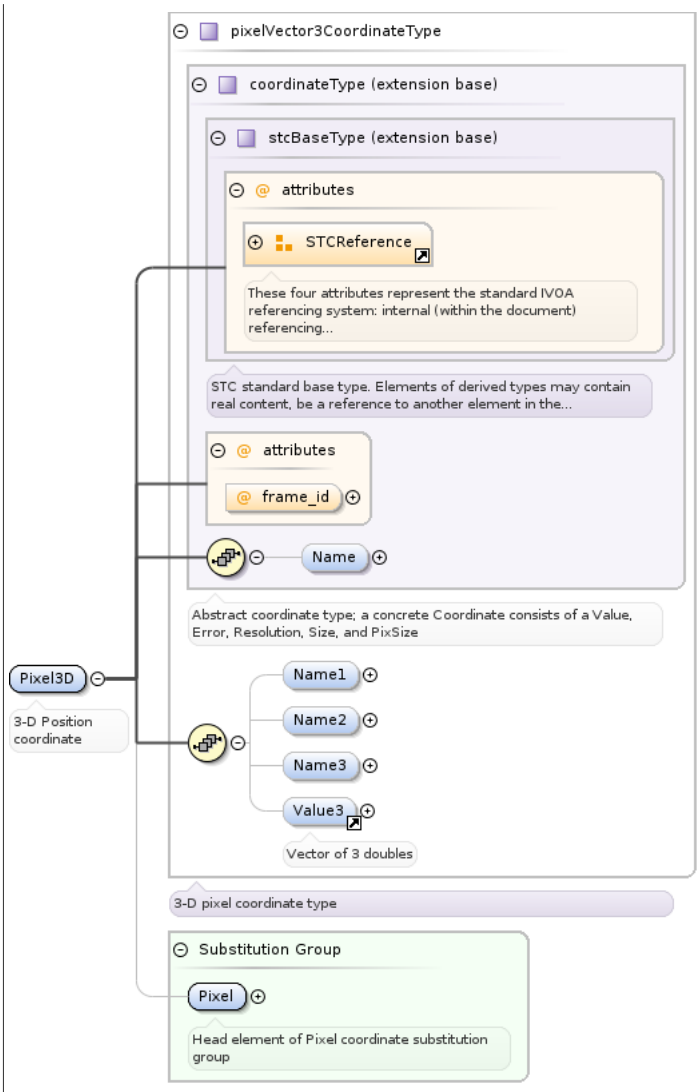
Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **frame_id** | xs:IDREF | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

| | |
|---|---|
| Source | <xs:element name="Pixel2D" type="pixelVector2CoordinateType" substitutionGroup="Pixel"<br> nillable="true"><br>  <xs:annotation><br>  <xs:documentation>2-D Position coordinate</xs:documentation><br>  </xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element Pixel3D

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | 3-D Position coordinate |

| | |
|---|---|
| Diagram |  |
| Type | pixelVector3CoordinateType |
| Type hierarchy | • stcBaseType<br>  • coordinateType<br>  • pixelVector3CoordinateType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • Pixel |
| Model | Name{0,1} , Name1{0,1} , Name2{0,1} , Name3{0,1} , Value3{0,1} |
| Children | Name, Name1, Name2, Name3, Value3 |
| Instance | <Pixel3D frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" xm<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <Name>{0,1}</Name><br>  <Name1>{0,1}</Name1><br>  <Name2>{0,1}</Name2><br>  <Name3>{0,1}</Name3><br>  <Value3 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" u<br>Value3><br></Pixel3D> |

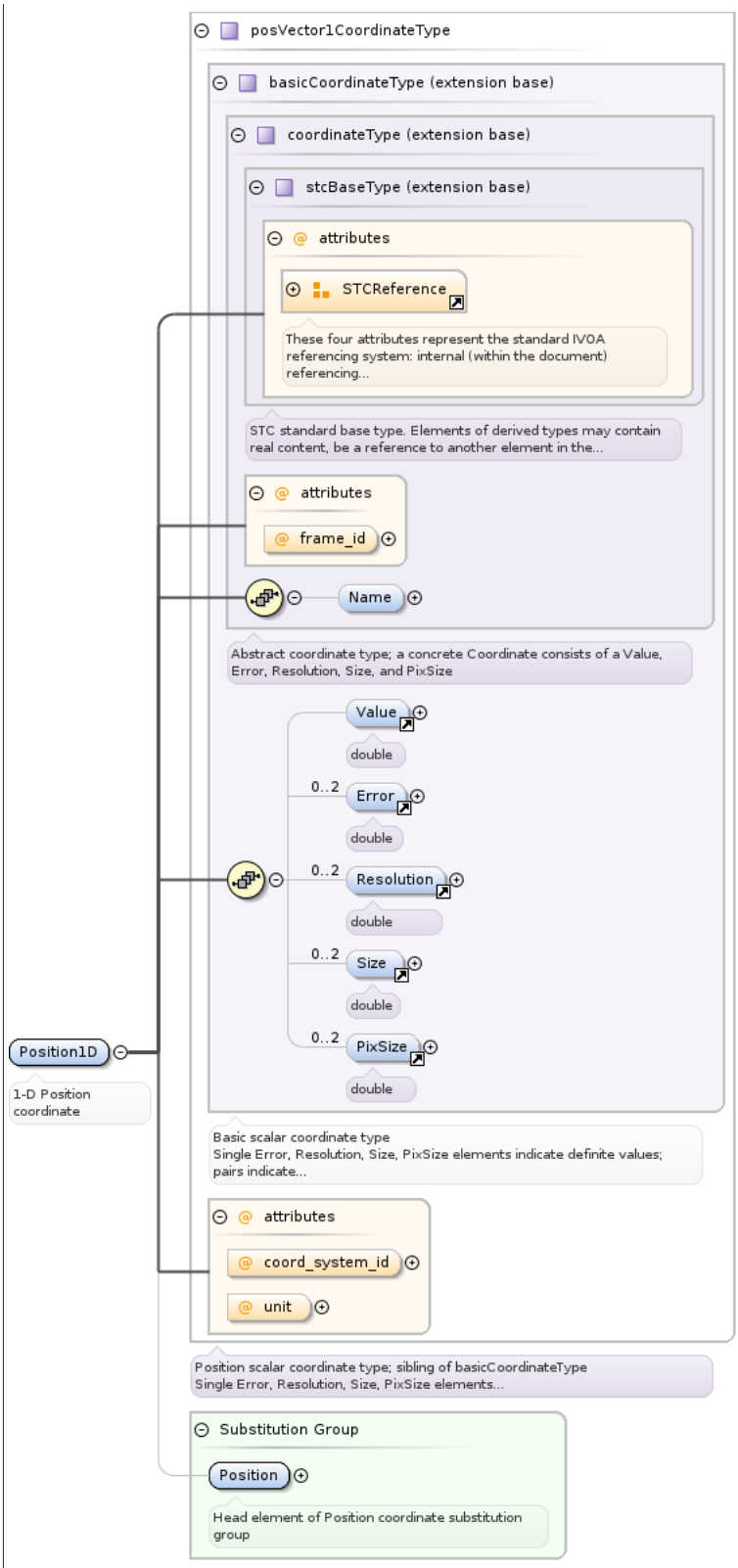
Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **frame_id** | xs:IDREF | | | optional |

| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **id** | xs:ID | | | optional |
| | **idref** | xs:IDREF | | | optional |
| | **ucd** | xs:string | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |
| Source | <xs:element name="Pixel3D" type="pixelVector3CoordinateType" substitutionGroup="Pixel" nillable="true"> <xs:annotation> <xs:documentation>3-D Position coordinate</xs:documentation> </xs:annotation> </xs:element> | | | | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | | | | |

## Element Position1D

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | 1-D Position coordinate |

| | |
|---|---|
| Diagram |  |
| Type | posVector1CoordinateType |
| Type hierarchy | • stcBaseType<br>  • coordinateType<br>  • basicCoordinateType<br>  • posVector1CoordinateType |

| | |
|---|---|
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • Position |
| Model | Name{0,1} , Value{0,1} , Error{0,2} , Resolution{0,2} , Size{0,2} , PixSize{0,2} |
| Children | Error, Name, PixSize, Resolution, Size, Value |

Instance

```
<Position1D coord_system_id="" frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:t
www.ivoa.net/xml/STC/stc-v1.30.xsd">
  <Name>{0,1}</Name>
  <Value gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit=""
Value>
  <Error gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit=""
Error>
  <Resolution gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_un
Resolution>
  <Size gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit=""
Size>
  <PixSize gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit=
PixSize>
</Position1D>
```

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **frame_id** | xs:IDREF | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

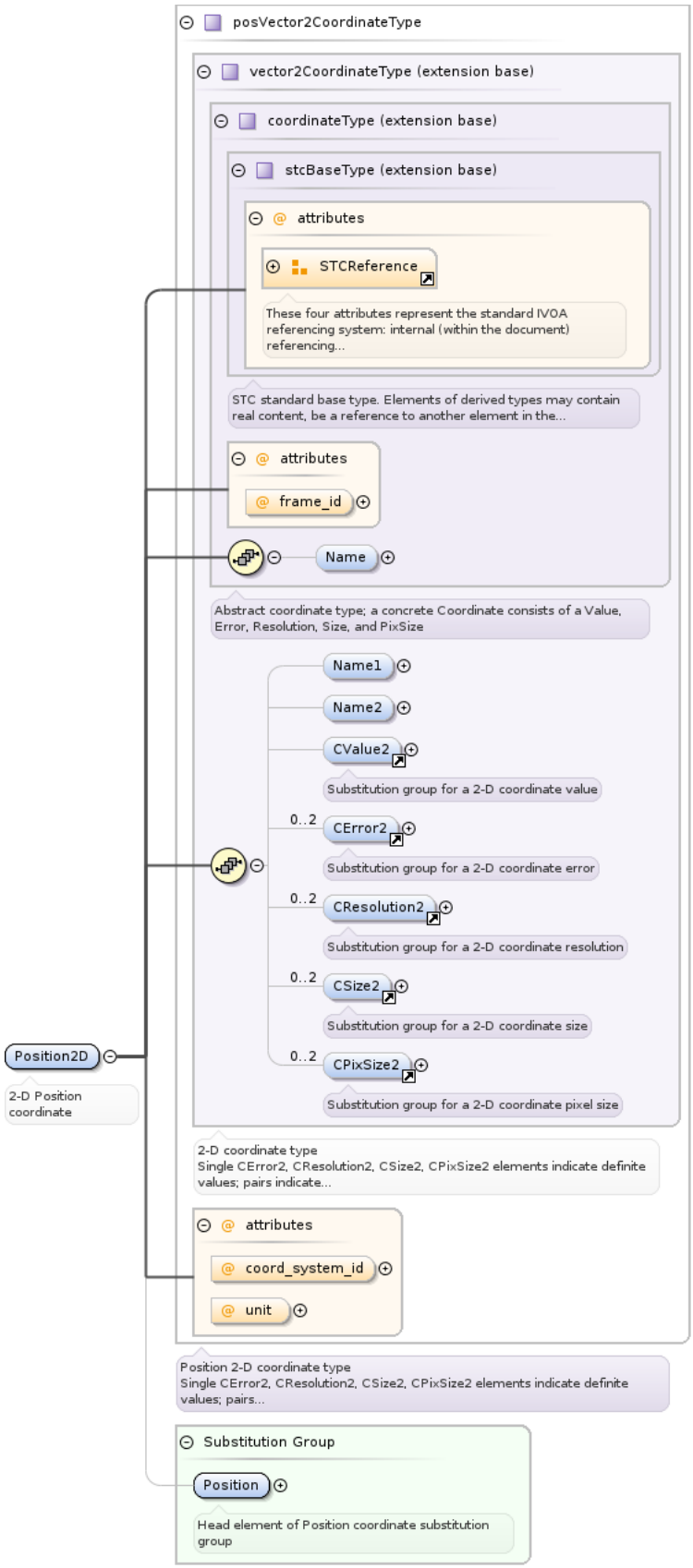
Source

```
<xs:element name="Position1D" type="posVector1CoordinateType" substitutionGroup="Position"
 nillable="true">
  <xs:annotation>
    <xs:documentation>1-D Position coordinate</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element Position2D

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | 2-D Position coordinate |

| | |
|---|---|
| Diagram |  |
| Type | posVector2CoordinateType |
| Type hierarchy | • stcBaseType<br>  • coordinateType |

| | |
|---|---|
| | • vector2CoordinateType<br>  • posVector2CoordinateType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • Position |
| Model | Name{0,1} , Name1{0,1} , Name2{0,1} , CValue2{0,1} , CError2{0,2} , CResolution2{0,2} , CSize2{0,2} , CPixSize2{0,2} |
| Children | CError2, CPixSize2, CResolution2, CSize2, CValue2, Name, Name1, Name2 |

Instance

```
<Position2D coord_system_id="" frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:t
www.ivoa.net/xml/STC/stc-v1.30.xsd">
  <Name>{0,1}</Name>
  <Name1>{0,1}</Name1>
  <Name2>{0,1}</Name2>
  <CValue2>{0,1}</CValue2>
  <CError2>{0,2}</CError2>
  <CResolution2>{0,2}</CResolution2>
  <CSize2>{0,2}</CSize2>
  <CPixSize2>{0,2}</CPixSize2>
</Position2D>
```

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **frame_id** | xs:IDREF | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

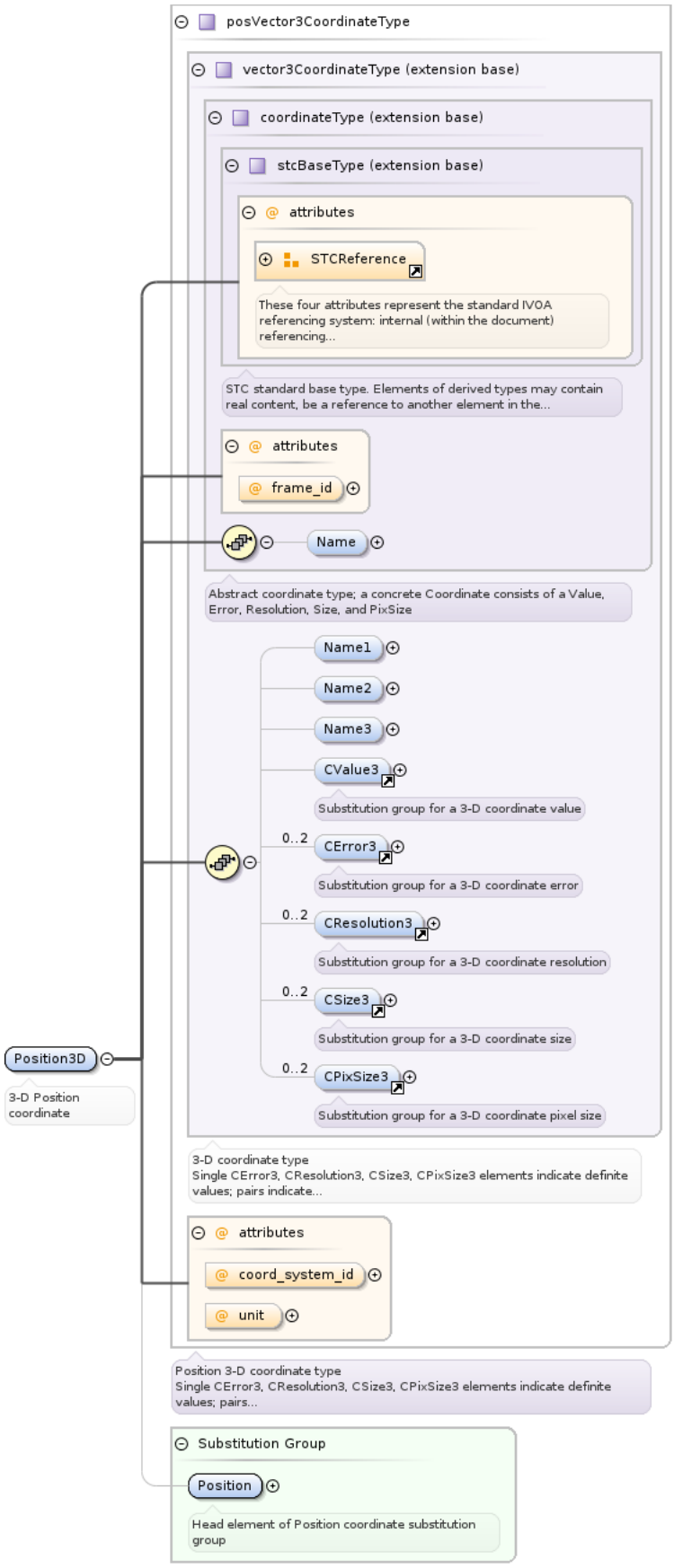
Source

```
<xs:element name="Position2D" type="posVector2CoordinateType" substitutionGroup="Position"
 nillable="true">
  <xs:annotation>
    <xs:documentation>2-D Position coordinate</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element Position3D

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | 3-D Position coordinate |

| | |
|---|---|
| Diagram |  |
| Type | posVector3CoordinateType |
| Type hierarchy | • stcBaseType |

| | |
|---|---|
| | • coordinateType<br>• vector3CoordinateType<br>• posVector3CoordinateType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • Position |
| Model | Name{0,1} , Name1{0,1} , Name2{0,1} , Name3{0,1} , CValue3{0,1} , CError3{0,2} , CResolution3{0,2} , CSize3{0,2} , CPixSize3{0,2} |
| Children | CError3, CPixSize3, CResolution3, CSize3, CValue3, Name, Name1, Name2, Name3 |

Instance

```
<Position3D coord_system_id="" frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:t
www.ivoa.net/xml/STC/stc-v1.30.xsd">
  <Name>{0,1}</Name>
  <Name1>{0,1}</Name1>
  <Name2>{0,1}</Name2>
  <Name3>{0,1}</Name3>
  <CValue3>{0,1}</CValue3>
  <CError3>{0,2}</CError3>
  <CResolution3>{0,2}</CResolution3>
  <CSize3>{0,2}</CSize3>
  <CPixSize3>{0,2}</CPixSize3>
</Position3D>
```

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **frame_id** | xs:IDREF | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

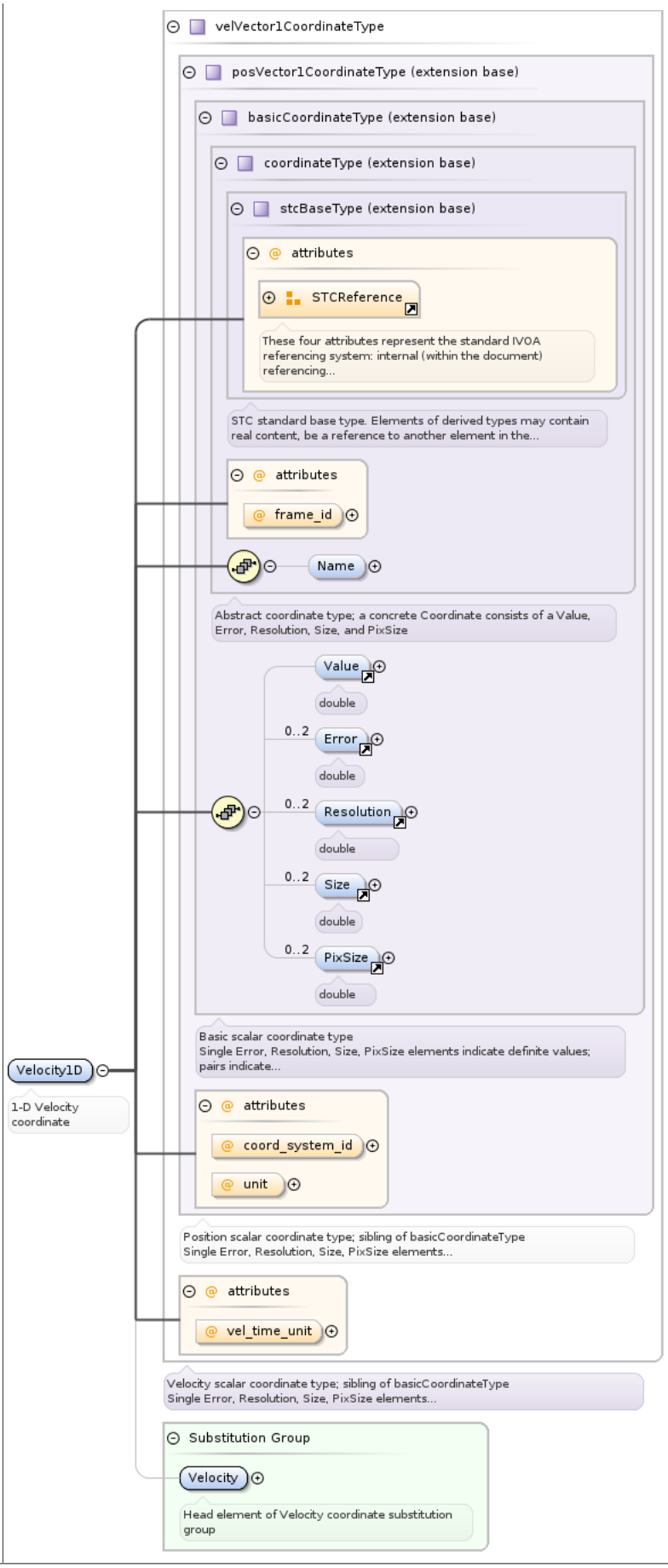
```
<xs:element name="Position3D" type="posVector3CoordinateType" substitutionGroup="Position"
 nillable="true">
  <xs:annotation>
    <xs:documentation>3-D Position coordinate</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element Velocity1D

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | 1-D Velocity coordinate |

Diagram


velVector1CoordinateType
posVector1CoordinateType (extension base)
basicCoordinateType (extension base)
coordinateType (extension base)
stcBaseType (extension base)
attributes
STCReference
These four attributes represent the standard IVOA referencing system: internal (within the document) referencing...
STC standard base type. Elements of derived types may contain real content, be a reference to another element in the...
attributes
frame_id
Name
Abstract coordinate type; a concrete Coordinate consists of a Value, Error, Resolution, Size, and PixSize
Value
double
0..2
Error
double
0..2
Resolution
double
0..2
Size
double
0..2
PixSize
double
Basic scalar coordinate type
Single Error, Resolution, Size, PixSize elements indicate definite values; pairs indicate...
Velocity1D
1-D Velocity coordinate
attributes
coord_system_id
unit
Position scalar coordinate type; sibling of basicCoordinateType
Single Error, Resolution, Size, PixSize elements...
attributes
vel_time_unit
Velocity scalar coordinate type; sibling of basicCoordinateType
Single Error, Resolution, Size, PixSize elements...
Substitution Group
Velocity
Head element of Velocity coordinate substitution group

| | |
|---|---|
| Type | velVector1CoordinateType |
| Type hierarchy | • stcBaseType<br>  • coordinateType<br>  • basicCoordinateType<br>  • posVector1CoordinateType<br>  • velVector1CoordinateType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • Velocity |
| Model | Name{0,1} , Value{0,1} , Error{0,2} , Resolution{0,2} , Size{0,2} , PixSize{0,2} |
| Children | Error, Name, PixSize, Resolution, Size, Value |

Instance

```
<Velocity1D coord_system_id="" frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:t
www.ivoa.net/xml/STC/stc-v1.30.xsd">
  <Name>{0,1}</Name>
  <Value gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="
Value>
  <Error gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="
Error>
  <Resolution gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_un
Resolution>
  <Size gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="
Size>
  <PixSize gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit=
PixSize>
</Velocity1D>
```

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **frame_id** | xs:IDREF | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

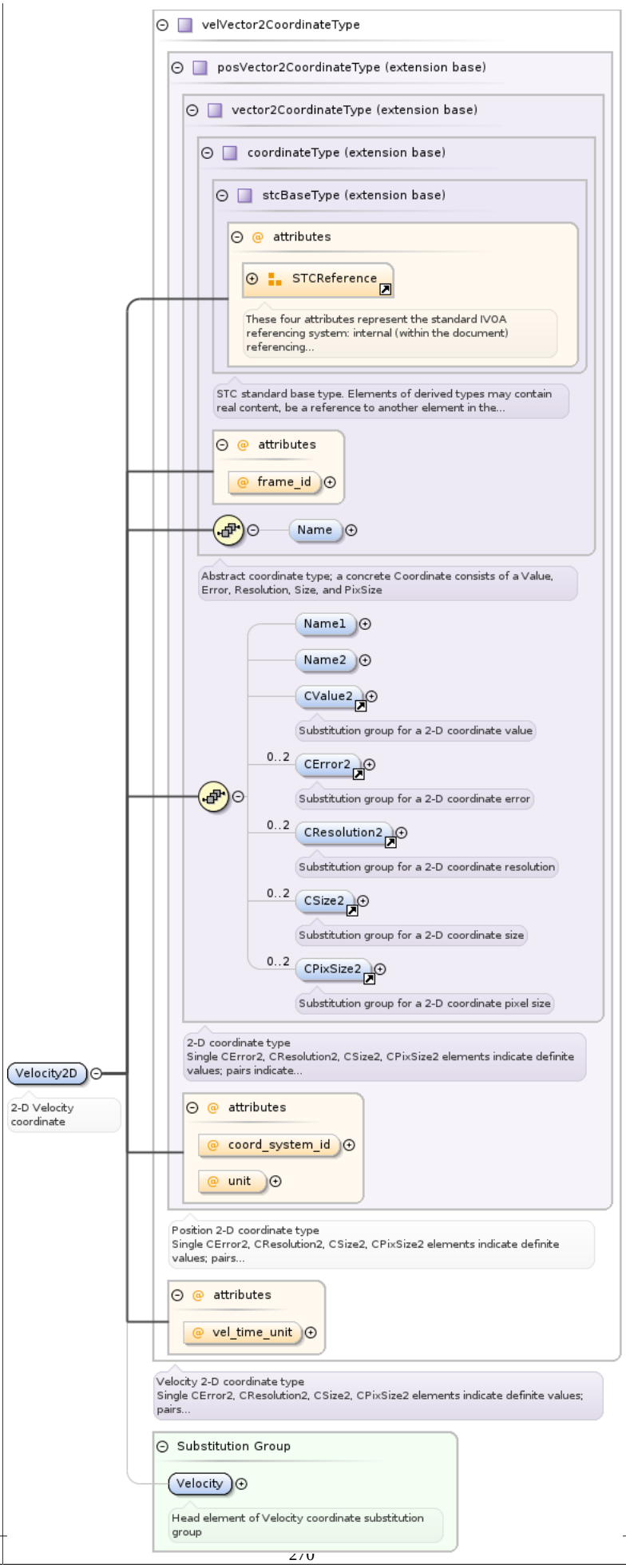
```
<xs:element name="Velocity1D" type="velVector1CoordinateType" substitutionGroup="Velocity"
 nillable="true">
  <xs:annotation>
    <xs:documentation>1-D Velocity coordinate</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element Velocity2D

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | 2-D Velocity coordinate |

Diagram


velVector2CoordinateType
posVector2CoordinateType (extension base)
vector2CoordinateType (extension base)
coordinateType (extension base)
stcBaseType (extension base)
attributes
STCReference
These four attributes represent the standard IVOA referencing system: internal (within the document) referencing...
STC standard base type. Elements of derived types may contain real content, be a reference to another element in the...
attributes
frame_id
Name
Abstract coordinate type; a concrete Coordinate consists of a Value, Error, Resolution, Size, and PixSize
Name1
Name2
CValue2
Substitution group for a 2-D coordinate value
0..2
CError2
Substitution group for a 2-D coordinate error
0..2
CResolution2
Substitution group for a 2-D coordinate resolution
0..2
CSize2
Substitution group for a 2-D coordinate size
0..2
CPixSize2
Substitution group for a 2-D coordinate pixel size
2-D coordinate type
Single CError2, CResolution2, CSize2, CPixSize2 elements indicate definite values; pairs indicate...
Velocity2D
2-D Velocity coordinate
attributes
coord_system_id
unit
Position 2-D coordinate type
Single CError2, CResolution2, CSize2, CPixSize2 elements indicate definite values; pairs...
attributes
vel_time_unit
Velocity 2-D coordinate type
Single CError2, CResolution2, CSize2, CPixSize2 elements indicate definite values; pairs...
Substitution Group
Velocity
Head element of Velocity coordinate substitution group

| | |
|---|---|
| Type | velVector2CoordinateType |
| Type hierarchy | • stcBaseType<br>  • coordinateType<br>  • vector2CoordinateType<br>  • posVector2CoordinateType<br>  • velVector2CoordinateType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • Velocity |
| Model | Name{0,1} , Name1{0,1} , Name2{0,1} , CValue2{0,1} , CError2{0,2} , CResolution2{0,2} , CSize2{0,2} , CPixSize2{0,2} |
| Children | CError2, CPixSize2, CResolution2, CSize2, CValue2, Name, Name1, Name2 |

Instance

```
<Velocity2D coord_system_id="" frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:t
www.ivoa.net/xml/STC/stc-v1.30.xsd">
  <Name>{0,1}</Name>
  <Name1>{0,1}</Name1>
  <Name2>{0,1}</Name2>
  <CValue2>{0,1}</CValue2>
  <CError2>{0,2}</CError2>
  <CResolution2>{0,2}</CResolution2>
  <CSize2>{0,2}</CSize2>
  <CPixSize2>{0,2}</CPixSize2>
</Velocity2D>
```

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **frame_id** | xs:IDREF | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

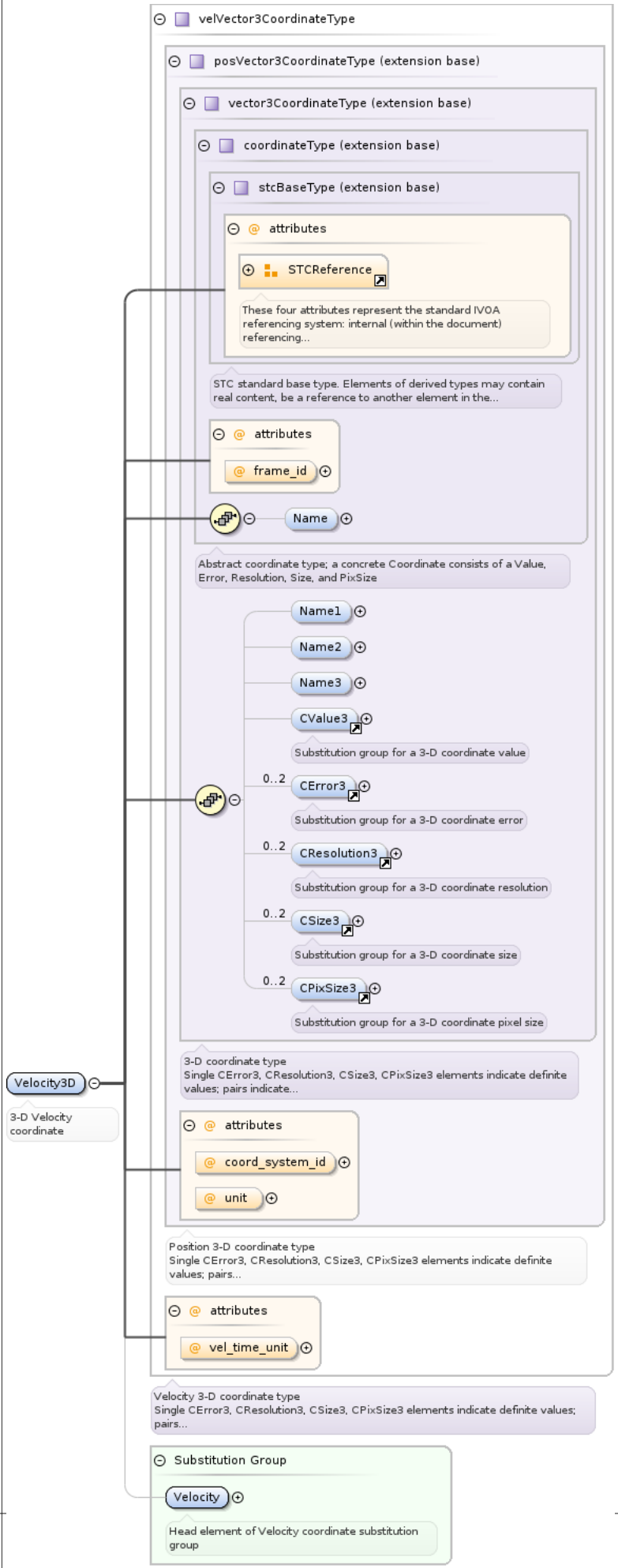
```
<xs:element name="Velocity2D" type="velVector2CoordinateType" substitutionGroup="Velocity"
 nillable="true">
  <xs:annotation>
    <xs:documentation>2-D Velocity coordinate</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element Velocity3D

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | 3-D Velocity coordinate |

Diagram


velVector3CoordinateType
posVector3CoordinateType (extension base)
vector3CoordinateType (extension base)
coordinateType (extension base)
stcBaseType (extension base)
attributes
STCReference
These four attributes represent the standard IVOA referencing system: internal (within the document) referencing...
STC standard base type. Elements of derived types may contain real content, be a reference to another element in the...
attributes
frame_id
Name
Abstract coordinate type; a concrete Coordinate consists of a Value, Error, Resolution, Size, and PixSize
Name1
Name2
Name3
CValue3
Substitution group for a 3-D coordinate value
0..2
CError3
Substitution group for a 3-D coordinate error
0..2
CResolution3
Substitution group for a 3-D coordinate resolution
0..2
CSize3
Substitution group for a 3-D coordinate size
0..2
CPixSize3
Substitution group for a 3-D coordinate pixel size
3-D coordinate type
Single CError3, CResolution3, CSize3, CPixSize3 elements indicate definite values; pairs indicate...
Velocity3D
3-D Velocity coordinate
attributes
coord_system_id
unit
Position 3-D coordinate type
Single CError3, CResolution3, CSize3, CPixSize3 elements indicate definite values; pairs...
attributes
vel_time_unit
Velocity 3-D coordinate type
Single CError3, CResolution3, CSize3, CPixSize3 elements indicate definite values; pairs...
Substitution Group
Velocity
Head element of Velocity coordinate substitution group

| | |
|---|---|
| Type | velVector3CoordinateType |
| Type hierarchy | • stcBaseType<br>  • coordinateType<br>  • vector3CoordinateType<br>  • posVector3CoordinateType<br>  • velVector3CoordinateType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • Velocity |
| Model | Name{0,1} , Name1{0,1} , Name2{0,1} , Name3{0,1} , CValue3{0,1} , CError3{0,2} , CResolution3{0,2} , CSize3{0,2} , CPixSize3{0,2} |
| Children | CError3, CPixSize3, CResolution3, CSize3, CValue3, Name, Name1, Name2, Name3 |

Instance

```
<Velocity3D coord_system_id="" frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:t
www.ivoa.net/xml/STC/stc-v1.30.xsd">
  <Name>{0,1}</Name>
  <Name1>{0,1}</Name1>
  <Name2>{0,1}</Name2>
  <Name3>{0,1}</Name3>
  <CValue3>{0,1}</CValue3>
  <CError3>{0,2}</CError3>
  <CResolution3>{0,2}</CResolution3>
  <CSize3>{0,2}</CSize3>
  <CPixSize3>{0,2}</CPixSize3>
</Velocity3D>
```

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **frame_id** | xs:IDREF | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

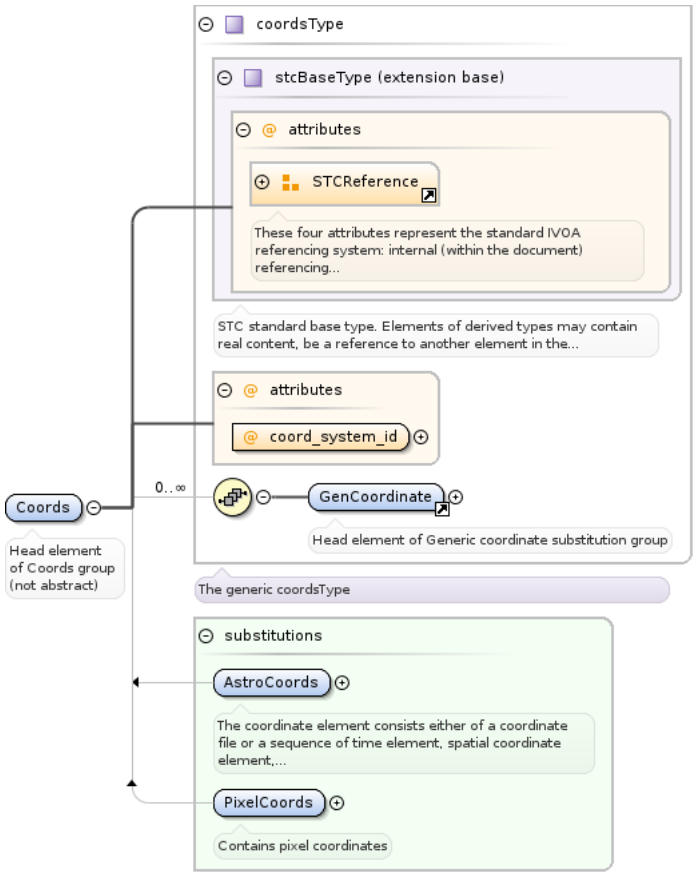
Source

```
<xs:element name="Velocity3D" type="velVector3CoordinateType" substitutionGroup="Velocity"
 nillable="true">
  <xs:annotation>
    <xs:documentation>3-D Velocity coordinate</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element Coords

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Head element of Coords group (not abstract) |

| | |
|---|---|
| Diagram |  |
| Type | coordsType |
| Type hierarchy | • stcBaseType<br>  • coordsType |
| Properties | content: complex<br>nillable: true |
| Substitution Group | • AstroCoords<br>• PixelCoords |
| Used by | Complex Type stcDescriptionType |
| Model | GenCoordinate |
| Children | GenCoordinate |
| Instance | `<Coords coord_system_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd`<br>`www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <GenCoordinate frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" u`<br>`GenCoordinate>`<br>`</Coords>` |

Attributes

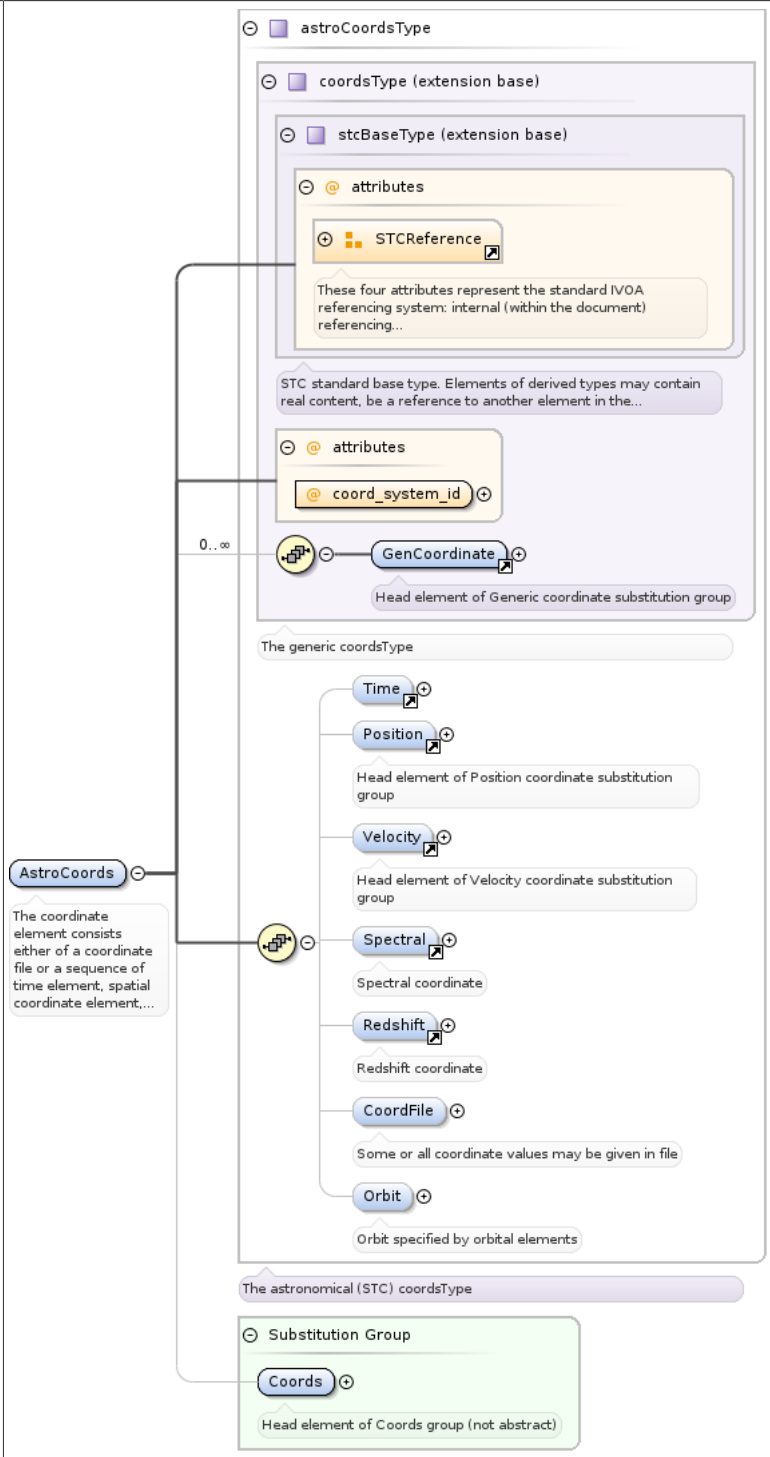
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | required |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:element name="Coords" type="coordsType" nillable="true">
  <xs:annotation>
```

| | |
|---|---|
| | <xs:documentation>Head element of Coords group (not abstract)</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element AstroCoords

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The coordinate element consists either of a coordinate file or a sequence of time element, spatial coordinate element, velocity element, and redshift element; the spatial and velocity elements may be scalar or vector; it needs to refer to a coordinate system |
| Diagram |  |
| Type | astroCoordsType |
| Type hierarchy | • stcBaseType |

| | |
|---|---|
| | • coordsType<br>  • astroCoordsType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • Coords |
| Used by | Complex Types: STCCoordinate, STCCoordinateList, astroSTCDescriptionType, observatoryLocationType |
| Model | GenCoordinate , Time{0,1} , Position{0,1} , Velocity{0,1} , Spectral{0,1} , Redshift{0,1} , CoordFile{0,1} , Orbit{0,1} |
| Children | CoordFile, GenCoordinate, Orbit, Position, Redshift, Spectral, Time, Velocity |

Instance

```
<AstroCoords coord_system_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple
www.ivoa.net/xml/STC/stc-v1.30.xsd">
  <GenCoordinate frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" u
GenCoordinate>
  <Time coord_system_id="" frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type=
Time>
  <Position frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="
Position>
  <Velocity frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="
Velocity>
  <Spectral coord_system_id="" frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:t
Spectral>
  <Redshift coord_system_id="" frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:t
Redshift>
  <CoordFile frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="
CoordFile>
  <Orbit frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="">{0
Orbit>
</AstroCoords>
```

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | required |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

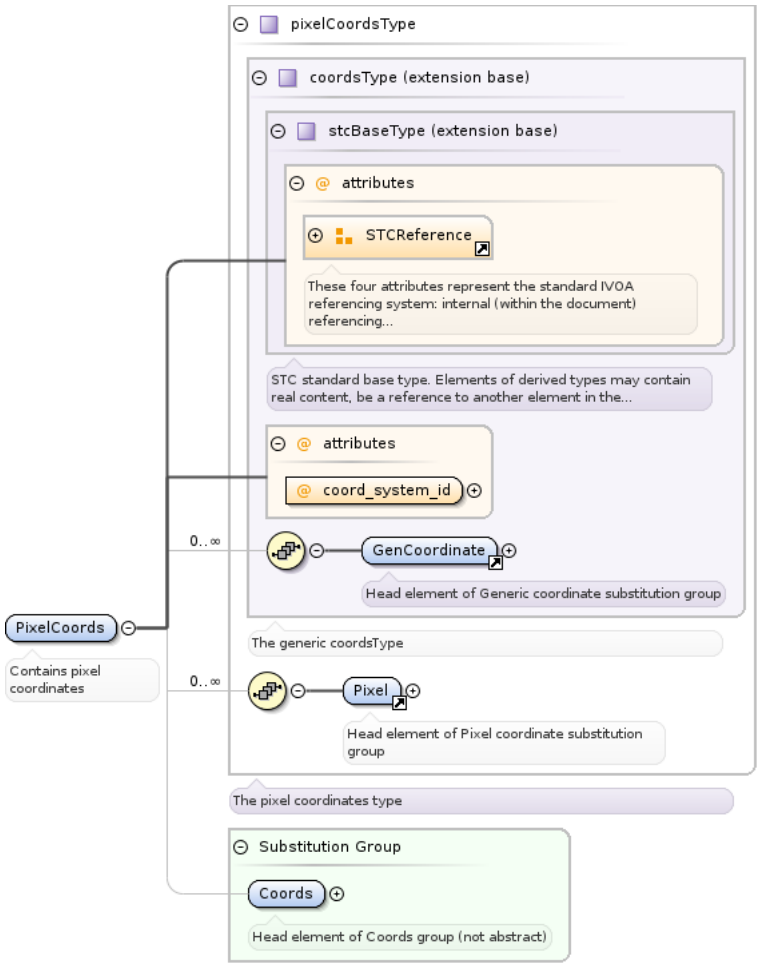
Source

```
<xs:element name="AstroCoords" type="astroCoordsType" substitutionGroup="Coords"
 nillable="true">
  <xs:annotation>
    <xs:documentation>The coordinate element consists either of a coordinate file or a
 sequence of time element, spatial coordinate element, velocity element, and redshift
 element; the spatial and velocity elements may be scalar or vector; it needs to refer to
 a coordinate system</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element PixelCoords

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Contains pixel coordinates |

| | |
|---|---|
| Diagram |  |
| Type | pixelCoordsType |
| Type hierarchy | • stcBaseType<br>  • coordsType<br>  • pixelCoordsType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • Coords |
| Used by | Complex Type pixelSpaceType |
| Model | GenCoordinate , Pixel |
| Children | GenCoordinate, Pixel |
| Instance | <PixelCoords coord_system_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <GenCoordinate frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" u<br>GenCoordinate><br>  <Pixel frame_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="">{1<br>Pixel><br></PixelCoords> |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | required |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |

| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

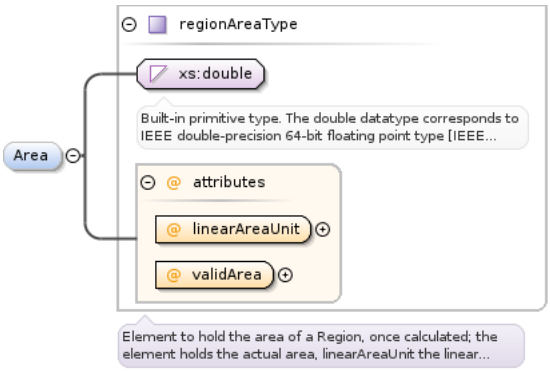
```
<xs:element name="PixelCoords" type="pixelCoordsType" substitutionGroup="Coords"
 nillable="true">
  <xs:annotation>
    <xs:documentation>Contains pixel coordinates</xs:documentation>
  </xs:annotation>
</xs:element>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Element `regionType / Area`

Namespace: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

Diagram




Type: regionAreaType

Properties

| | |
|---|---|
| content: | complex |
| minOccurs: | 0 |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **linearAreaUnit** | posUnitType | | | required |
| **validArea** | xs:boolean | | | required |

Source

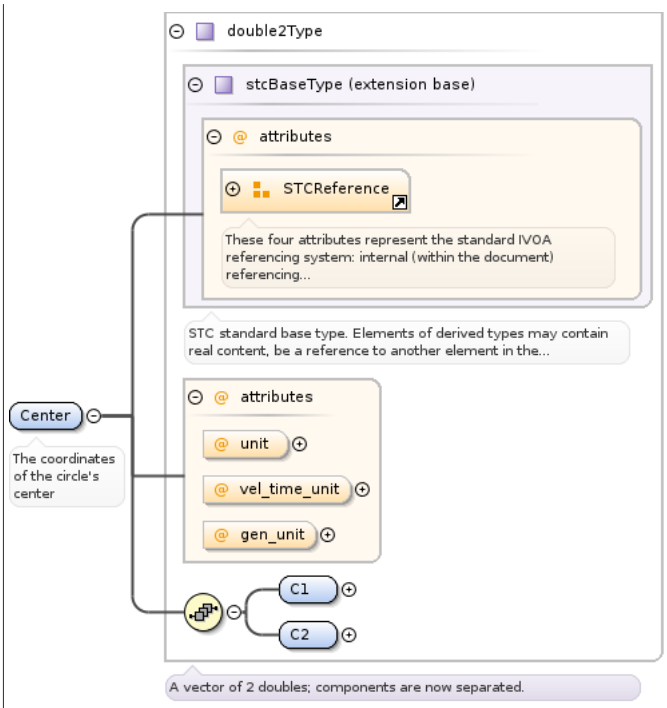
```
<xs:element name="Area" type="regionAreaType" minOccurs="0"/>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Element `circleType / Center`

Namespace: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

Annotations: The coordinates of the circle's center

| | |
|---|---|
| Diagram |  |
| Type | double2Type |
| Type hierarchy | • stcBaseType<br>  • double2Type |
| Properties | content: complex<br>nillable: true |
| Model | C1 , C2 |
| Children | C1, C2 |
| Instance | `<Center gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" uni`<br>`www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <C1 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp`<br>`C1>`<br>`  <C2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp`<br>`C2>`<br>`</Center>` |

Attributes

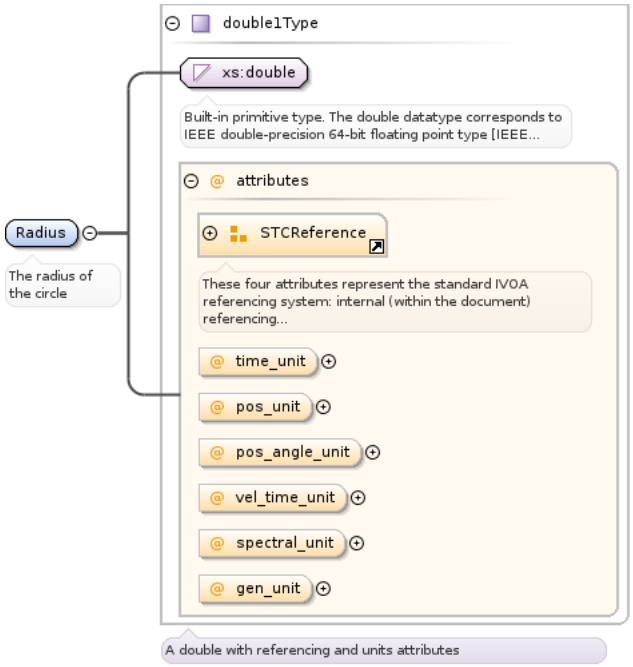
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:element name="Center" type="double2Type" nillable="true">
  <xs:annotation>
    <xs:documentation>The coordinates of the circle's center</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `circleType / Radius`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `The radius of the circle` |
| Diagram |  |
| Type | double1Type |
| Properties | content: `complex`<br>nillable: `true` |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **pos_angle_unit** | angleUnitType | | | optional |
| **pos_unit** | posUnitType | | | optional |
| **spectral_unit** | spectralUnitType | | | optional |
| **time_unit** | timeUnitType | | | optional |
| **ucd** | xs:string | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

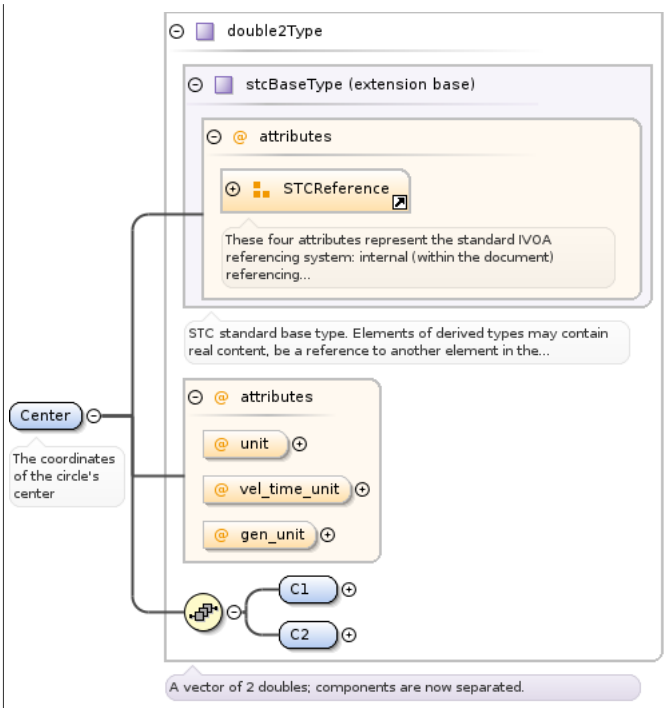
Source

```
<xs:element name="Radius" type="double1Type" nillable="true">
  <xs:annotation>
    <xs:documentation>The radius of the circle</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `ellipseType / Center`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `The coordinates of the circle's center` |

| | |
|---|---|
| Diagram |  |
| Type | double2Type |
| Type hierarchy | • stcBaseType<br>  • double2Type |
| Properties | content: complex<br>nillable: true |
| Model | C1 , C2 |
| Children | C1, C2 |
| Instance | `<Center gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" uni`<br>`www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <C1 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp`<br>`C1>`<br>`  <C2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp`<br>`C2>`<br>`</Center>` |

Attributes

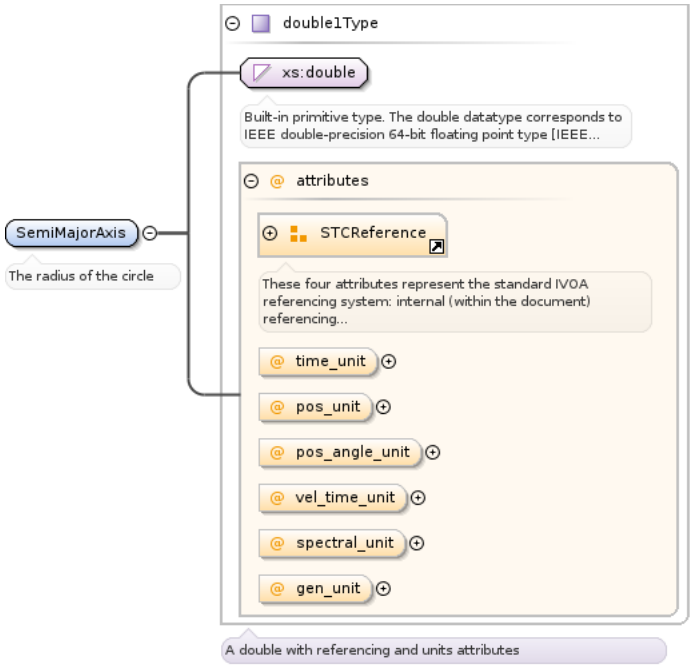
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:element name="Center" type="double2Type" nillable="true">
  <xs:annotation>
    <xs:documentation>The coordinates of the circle's center</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `ellipseType / SemiMajorAxis`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `The radius of the circle` |
| Diagram |  |
| Type | double1Type |
| Properties | content: `complex`<br>nillable: `true` |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **pos_angle_unit** | angleUnitType | | | optional |
| **pos_unit** | posUnitType | | | optional |
| **spectral_unit** | spectralUnitType | | | optional |
| **time_unit** | timeUnitType | | | optional |
| **ucd** | xs:string | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

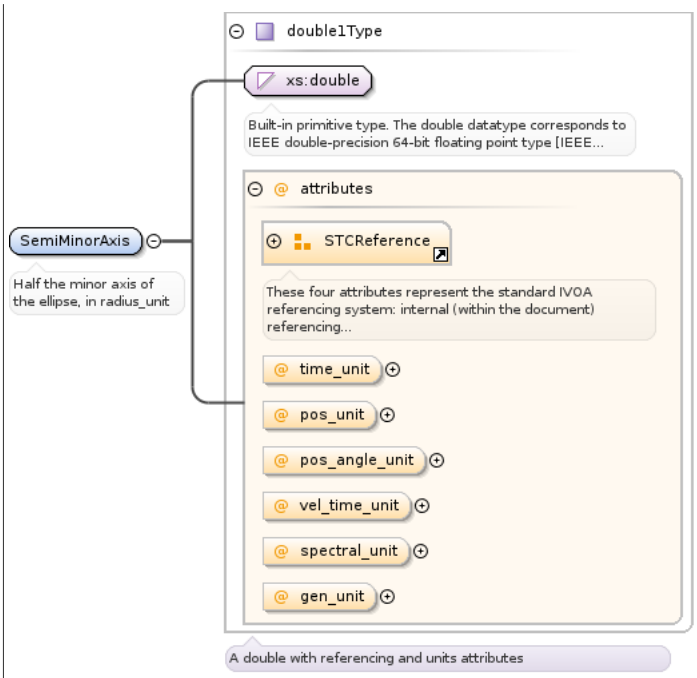
Source

```
<xs:element name="SemiMajorAxis" type="double1Type" nillable="true">
  <xs:annotation>
    <xs:documentation>The radius of the circle</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `ellipseType / SemiMinorAxis`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `Half the minor axis of the ellipse, in radius_unit` |

| | |
|---|---|
| Diagram |  |
| Type | double1Type |
| Properties | content: `complex`<br>nillable: `true` |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **pos_angle_unit** | angleUnitType | | | optional |
| **pos_unit** | posUnitType | | | optional |
| **spectral_unit** | spectralUnitType | | | optional |
| **time_unit** | timeUnitType | | | optional |
| **ucd** | xs:string | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

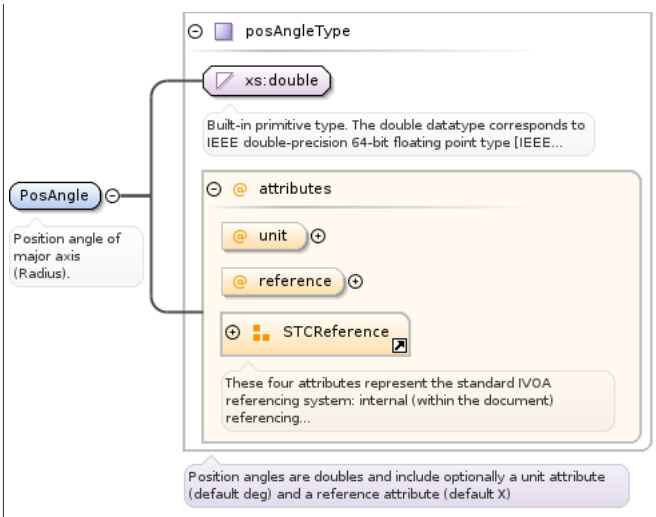
Source

```
<xs:element name="SemiMinorAxis" type="double1Type" nillable="true">
  <xs:annotation>
    <xs:documentation>Half the minor axis of the ellipse, in radius_unit</
xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `ellipseType / PosAngle`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `Position angle of major axis (Radius).` |

| | |
|---|---|
| Diagram |  |
| Type | posAngleType |
| Properties | content: `complex`<br>nillable: `true` |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **reference** | posAngleReference-Type | | X | optional |
| **ucd** | xs:string | | | optional |
| **unit** | angleUnitType | | deg | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

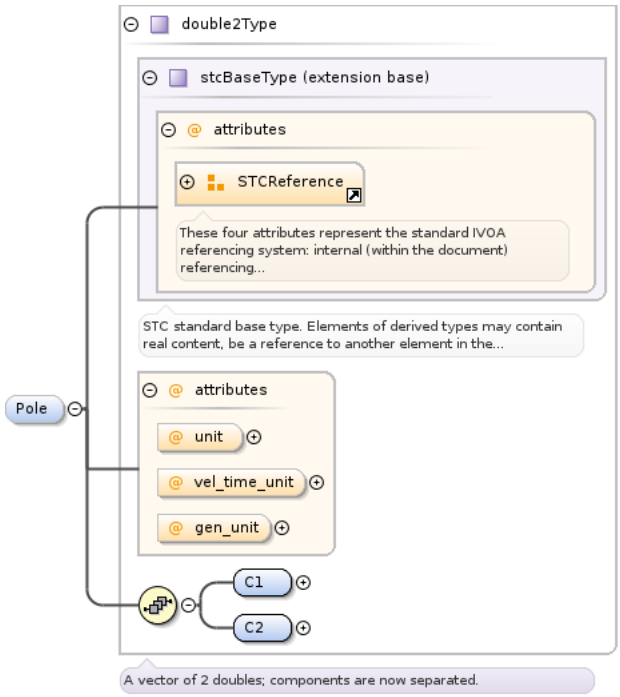
Source

```
<xs:element name="PosAngle" type="posAngleType" nillable="true">
  <xs:annotation>
    <xs:documentation>Position angle of major axis (Radius).</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `smallCircleType / Pole`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

| | |
|---|---|
| Diagram |  |
| Type | double2Type |
| Type hierarchy | • stcBaseType<br>  • double2Type |
| Properties | content: complex<br>minOccurs: 0<br>nillable: true |
| Model | C1 , C2 |
| Children | C1, C2 |
| Instance | <Pole gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" unit=<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <C1 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C1><br>  <C2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C2><br></Pole> |

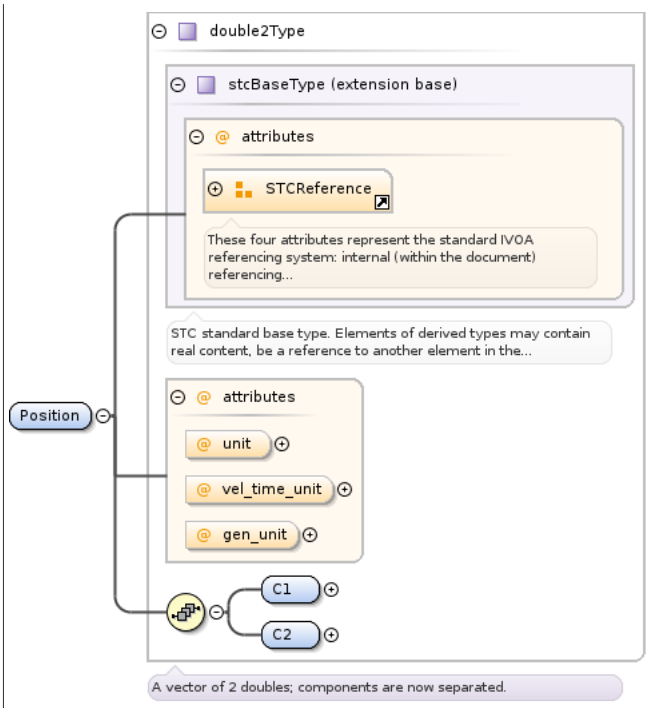
Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

| | |
|---|---|
| Source | <xs:element name="Pole" type="double2Type" nillable="true" minOccurs="0"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element vertexType / Position

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

| | |
|---|---|
| Diagram |  |
| Type | double2Type |
| Type hierarchy | • stcBaseType<br>  • double2Type |
| Properties | content: complex<br>nillable: true |
| Model | C1 , C2 |
| Children | C1, C2 |
| Instance | <Position gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" u<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <C1 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C1><br>  <C2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C2><br></Position> |

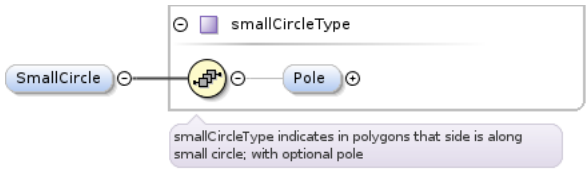
Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

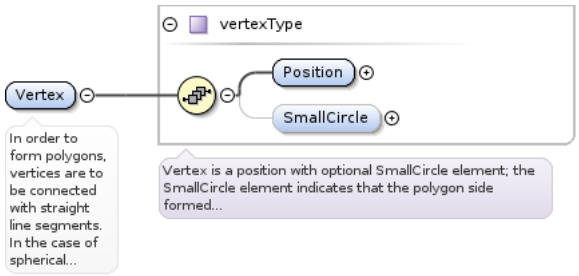
| | |
|---|---|
| Source | <xs:element name="Position" type="double2Type" nillable="true"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element vertexType / SmallCircle

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

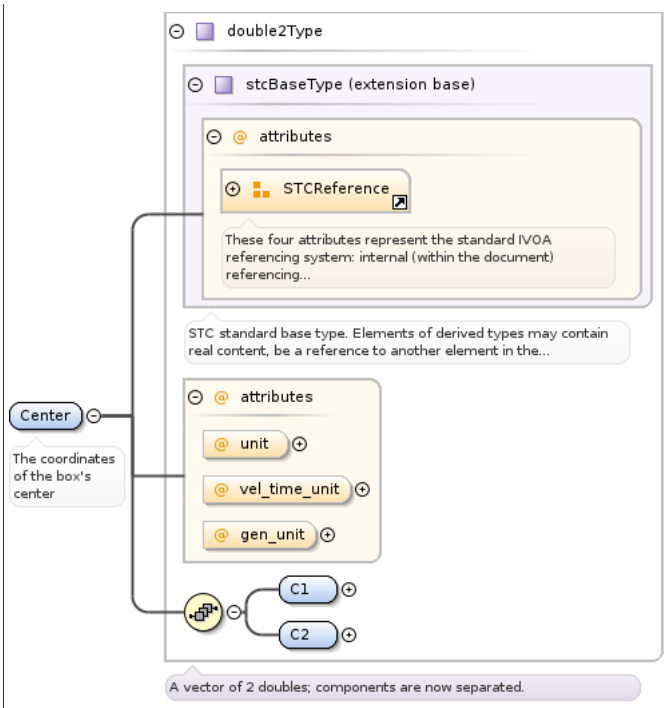
| | |
|---|---|
| Diagram |  |
| Type | smallCircleType |
| Properties | content: complex<br>minOccurs: 0<br>nillable: true |
| Model | Pole{0,1} |
| Children | Pole |
| Instance | <SmallCircle xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd"><br><Pole gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" uni<br>Pole><br></SmallCircle> |
| Source | <xs:element name="SmallCircle" type="smallCircleType" nillable="true" minOccurs="0"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element polygonType / Vertex

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | In order to form polygons, vertices are to be connected with straight line segments. In the case of spherical coordinates: greatcircle segments; if a smallCircle element si present, the vertex and its predecessor are to be connected with a smallcircle, by default in the CoordSys that is referenced; optionally, a pole may be specified (other than the CoordSys pole) that defines the smallcircle system |
| Diagram |  |
| Type | vertexType |
| Properties | content: complex<br>maxOccurs: unbounded |
| Model | Position , SmallCircle{0,1} |
| Children | Position, SmallCircle |
| Instance | <Vertex xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd"><br><Position gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd=""<br>Position><br><SmallCircle>{0,1}</SmallCircle><br></Vertex> |
| Source | <xs:element name="Vertex" type="vertexType" maxOccurs="unbounded"><br><xs:annotation><br><xs:documentation>In order to form polygons, vertices are to be connected with straight line segments. In the case of spherical coordinates: greatcircle segments; if a smallCircle element si present, the vertex and its predecessor are to be connected with a smallcircle, by default in the CoordSys that is referenced; optionally, a pole may be specified (other than the CoordSys pole) that defines the smallcircle system</<br>xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element boxType / Center

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The coordinates of the box's center |

| | |
|---|---|
| Diagram |  |
| Type | double2Type |
| Type hierarchy | • stcBaseType<br>  • double2Type |
| Properties | content: complex<br>nillable: true |
| Model | C1 , C2 |
| Children | C1, C2 |
| Instance | `<Center gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" uni`<br>`www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <C1 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp`<br>`C1>`<br>`  <C2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp`<br>`C2>`<br>`</Center>` |

Attributes

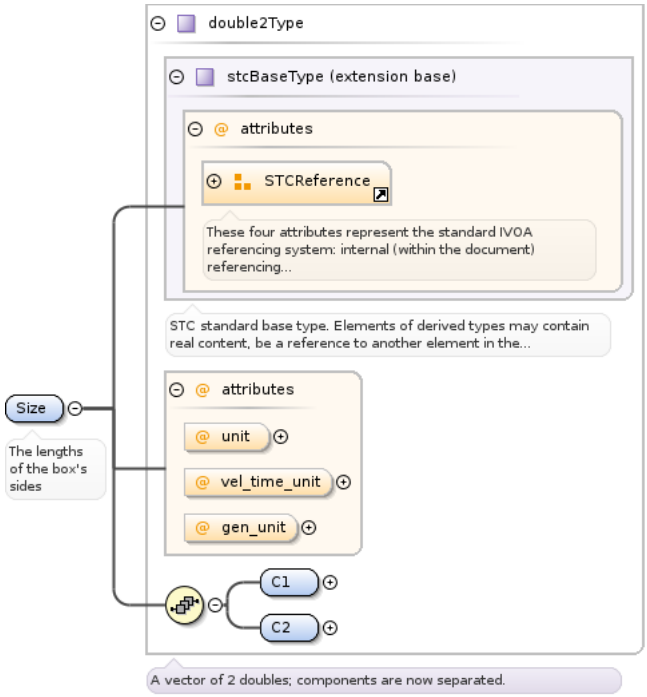
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:element name="Center" type="double2Type" nillable="true">
  <xs:annotation>
    <xs:documentation>The coordinates of the box's center</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element boxType / Size

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The lengths of the box's sides |
| Diagram |  |
| Type | double2Type |
| Type hierarchy | • stcBaseType<br>  • double2Type |
| Properties | content: complex<br>nillable: true |
| Model | C1 , C2 |
| Children | C1, C2 |
| Instance | <Size gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" unit=<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <C1 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C1><br>  <C2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C2><br></Size> |

Attributes

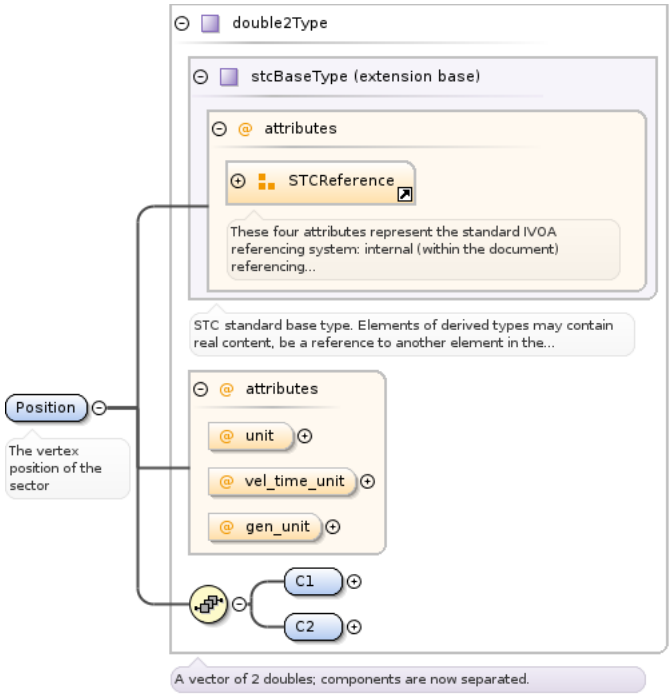
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:element name="Size" type="double2Type" nillable="true">
  <xs:annotation>
    <xs:documentation>The lengths of the box's sides</xs:documentation>
  </xs:annotation>
```

| | |
|---|---|
| | `</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `sectorType / Position`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `The vertex position of the sector` |
| Diagram |  |
| Type | double2Type |
| Type hierarchy | • stcBaseType<br>  • double2Type |
| Properties | content: `complex` |
| Model | C1 , C2 |
| Children | C1, C2 |
| `Instance` | `<Position gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" u`<br>`www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <C1 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp`<br>`C1>`<br>`  <C2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp`<br>`C2>`<br>`</Position>` |

Attributes

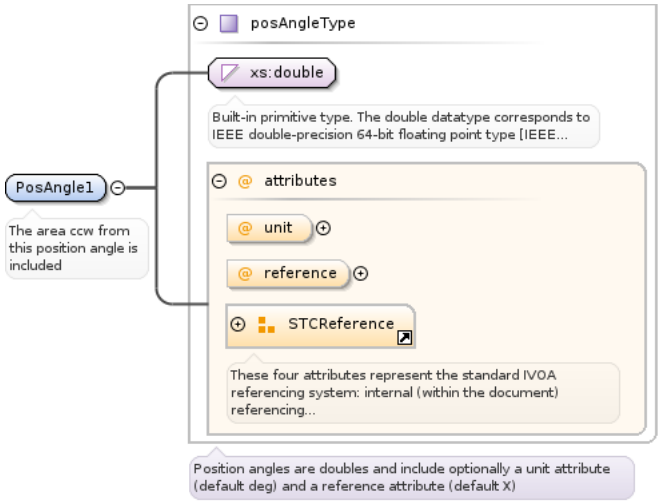
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

`Source`

```
<xs:element name="Position" type="double2Type">
  <xs:annotation>
```

| | |
|---|---|
| | <xs:documentation>The vertex position of the sector</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element sectorType / PosAngle1

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The area ccw from this position angle is included |
| Diagram |  |
| Type | posAngleType |
| Properties | content: complex |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **reference** | posAngleReference-Type | | X | optional |
| **ucd** | xs:string | | | optional |
| **unit** | angleUnitType | | deg | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

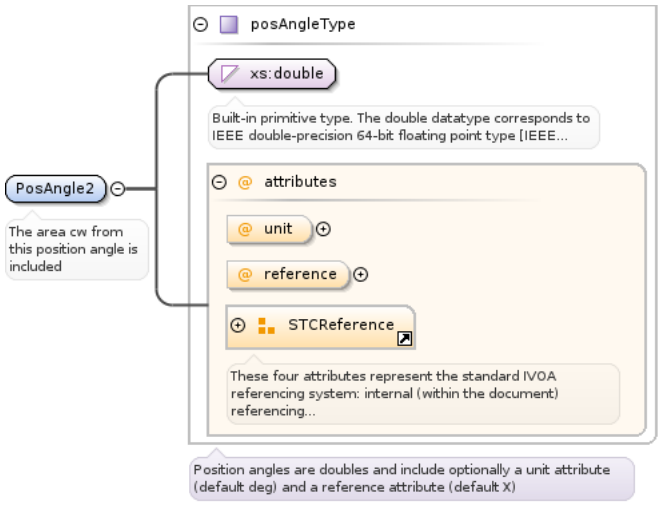
Source

```
<xs:element name="PosAngle1" type="posAngleType">
  <xs:annotation>
    <xs:documentation>The area ccw from this position angle is included</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element sectorType / PosAngle2

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The area cw from this position angle is included |

| | |
|---|---|
| Diagram |  |
| Type | posAngleType |
| Properties | content: complex |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **reference** | posAngleReference-Type | | X | optional |
| **ucd** | xs:string | | | optional |
| **unit** | angleUnitType | | deg | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

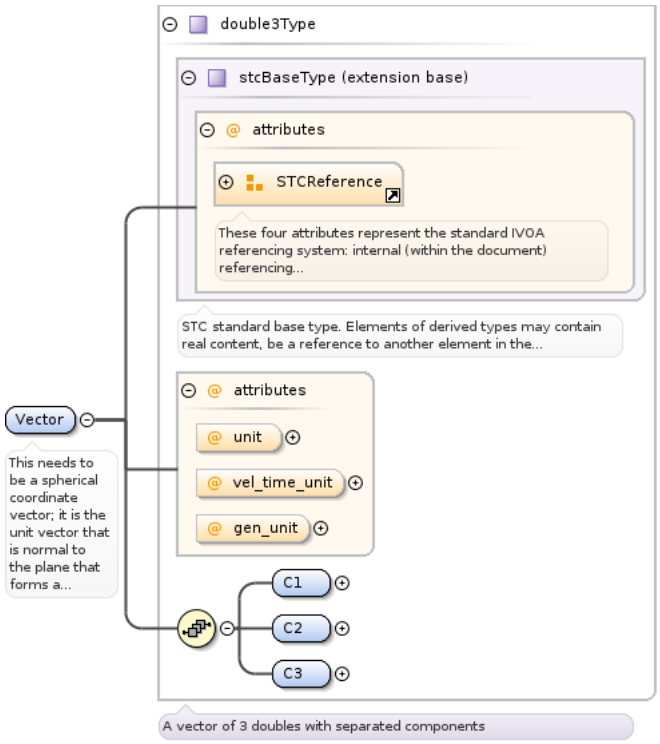
Source

```
<xs:element name="PosAngle2" type="posAngleType">
  <xs:annotation>
    <xs:documentation>The area cw from this position angle is included</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element halfspaceType / Vector

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | This needs to be a spherical coordinate vector; it is the unit vector that is normal to the plane that forms a constraint for a convex |

| | |
|---|---|
| Diagram |  |
| Type | double3Type |
| Type hierarchy | • stcBaseType<br>  • double3Type |
| Properties | content: complex<br>nillable: true |
| Model | C1 , C2 , C3 |
| Children | C1, C2, C3 |
| Instance | <Vector gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" uni<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <C1 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C1><br>  <C2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C2><br>  <C3 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C3><br></Vector> |

Attributes

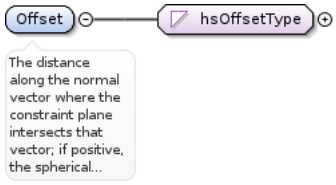
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

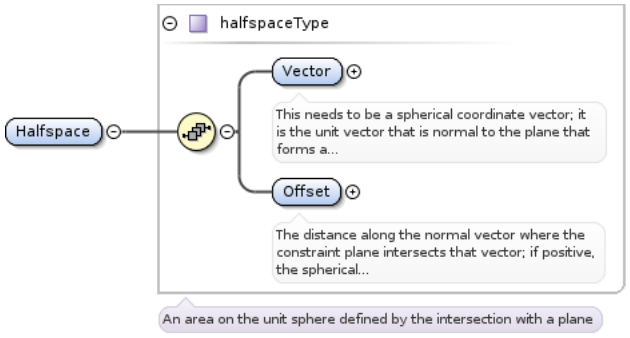
```
<xs:element name="Vector" type="double3Type" nillable="true">
  <xs:annotation>
    <xs:documentation>This needs to be a spherical coordinate vector; it is the
 unit vector that is normal to the plane that forms a constraint for a convex</
xs:documentation>
  </xs:annotation>
```

| | |
|---|---|
| | `</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `halfspaceType / Offset`

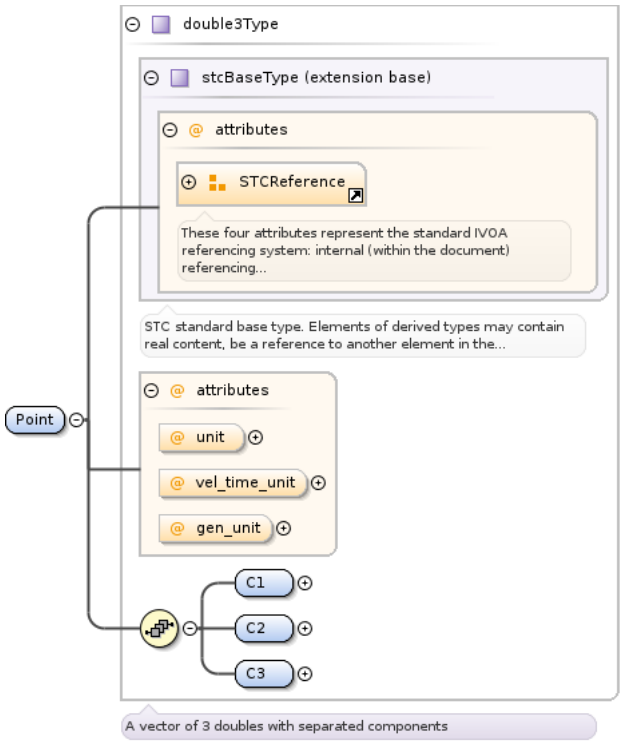
| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The distance along the normal vector where the constraint plane intersects that vector; if positive, the spherical sector on the far side (seen from the center) is selected; if negative, the point of intersection is in the opposite direction of the vector, resulting in more than a hemisphere; the valid range is -1.0 to +1.0 |
| Diagram |  |
| Type | hsOffsetType |
| Properties | content: simple |
| Facets | maxInclusive 1.0<br>minInclusive -1.0 |
| Source | `<xs:element name="Offset" type="hsOffsetType">`<br>`  <xs:annotation>`<br>`  <xs:documentation>`The distance along the normal vector where the constraint plane intersects that vector; if positive, the spherical sector on the far side (seen from the center) is selected; if negative, the point of intersection is in the opposite direction of the vector, resulting in more than a hemisphere; the valid range is -1.0 to +1.0`</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `convexType / Halfspace`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Diagram |  |
| Type | halfspaceType |
| Properties | content: complex<br>maxOccurs: unbounded |
| Model | Vector , Offset |
| Children | Offset, Vector |
| Instance | `<Halfspace xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Vector gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" u`<br>`Vector>`<br>`  <Offset>{1,1}</Offset>`<br>`</Halfspace>` |
| Source | `<xs:element name="Halfspace" type="halfspaceType" maxOccurs="unbounded"/>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `convexHullType / Point`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

| | |
|---|---|
| Diagram |  |
| Type | double3Type |
| Type hierarchy | • stcBaseType<br>  • double3Type |
| Properties | content: complex<br>maxOccurs: unbounded<br>nillable: true |
| Model | C1 , C2 , C3 |
| Children | C1, C2, C3 |
| Instance | <Point gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" unit<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <C1 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C1><br>  <C2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C2><br>  <C3 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C3><br></Point> |

Attributes

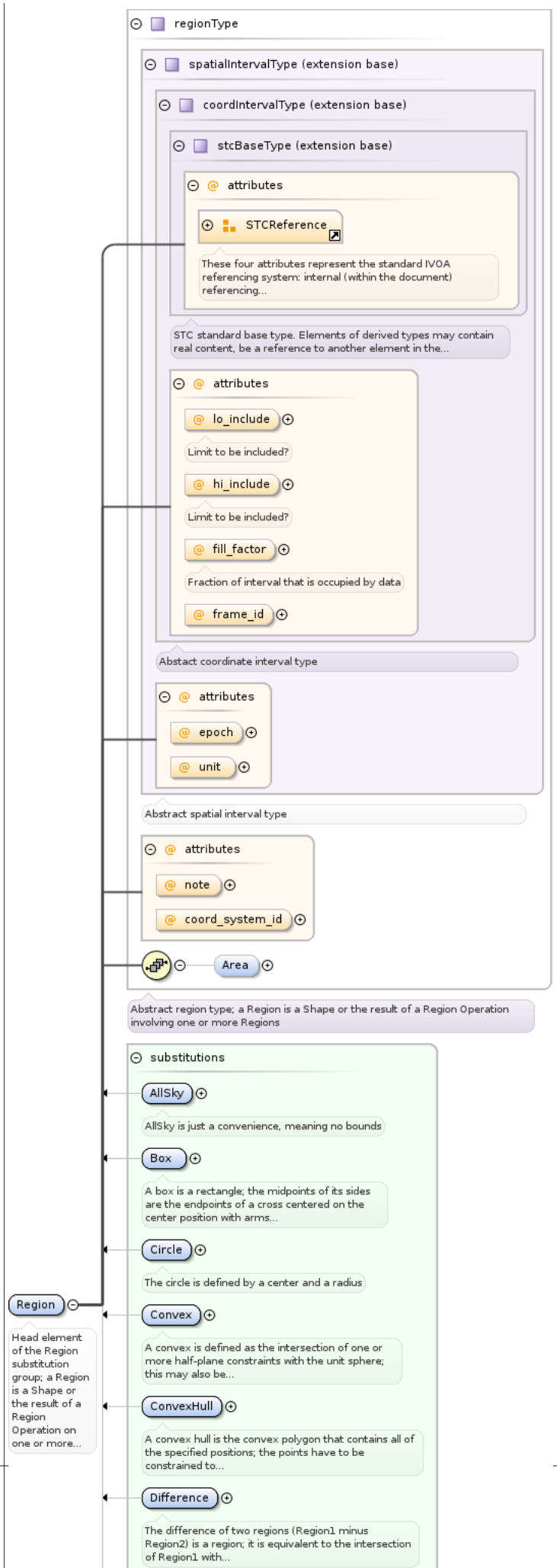
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

| | |
|---|---|
| Source | <xs:element name="Point" type="double3Type" nillable="true" maxOccurs="unbounded"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element Region

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Head element of the Region substitution group; a Region is a Shape or the result of a Region Operation on one or more Regions |

Diagram


regionType
spatialIntervalType (extension base)
coordIntervalType (extension base)
stcBaseType (extension base)
attributes
STCReference
These four attributes represent the standard IVOA referencing system: internal (within the document) referencing...
STC standard base type. Elements of derived types may contain real content, be a reference to another element in the...
attributes
lo_include
Limit to be included?
hi_include
Limit to be included?
fill_factor
Fraction of interval that is occupied by data
frame_id
Abstact coordinate interval type
attributes
epoch
unit
Abstract spatial interval type
attributes
note
coord_system_id
Area
Abstract region type; a Region is a Shape or the result of a Region Operation involving one or more Regions
substitutions
AllSky
AllSky is just a convenience, meaning no bounds
Box
A box is a rectangle; the midpoints of its sides are the endpoints of a cross centered on the center position with arms...
Circle
The circle is defined by a center and a radius
Convex
A convex is defined as the intersection of one or more half-plane constraints with the unit sphere; this may also be...
ConvexHull
A convex hull is the convex polygon that contains all of the specified positions; the points have to be constrained to...
Difference
The difference of two regions (Region1 minus Region2) is a region; it is equivalent to the intersection of Region1 with...
Region
Head element of the Region substitution group; a Region is a Shape or the result of a Region Operation on one or more...

| | |
|---|---|
| Type | regionType |
| Type hierarchy | • stcBaseType<br>  • coordIntervalType<br>  • spatialIntervalType<br>  • regionType |
| Properties | content: complex<br>nillable: true |
| Substitution Group | • Intersection<br>• Union<br>• Negation<br>• Difference<br>• AllSky<br>• Circle<br>• Ellipse<br>• Polygon<br>• Box<br>• Sector<br>• Convex<br>• ConvexHull<br>• SkyIndex |
| Substitution Group Affiliation | • PositionInterval |
| Used by | Complex Types: STCRegion, STCRegionList, diffType, intersectionType, negationType, unionType |
| Model | Area{0,1} |
| Children | Area |

Instance

```
<Region coord_system_id="" epoch="" fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id=""
www.ivoa.net/xml/STC/stc-v1.30.xsd">
  <Area linearAreaUnit="" validArea="">{0,1}</Area>
</Region>
```

Attributes

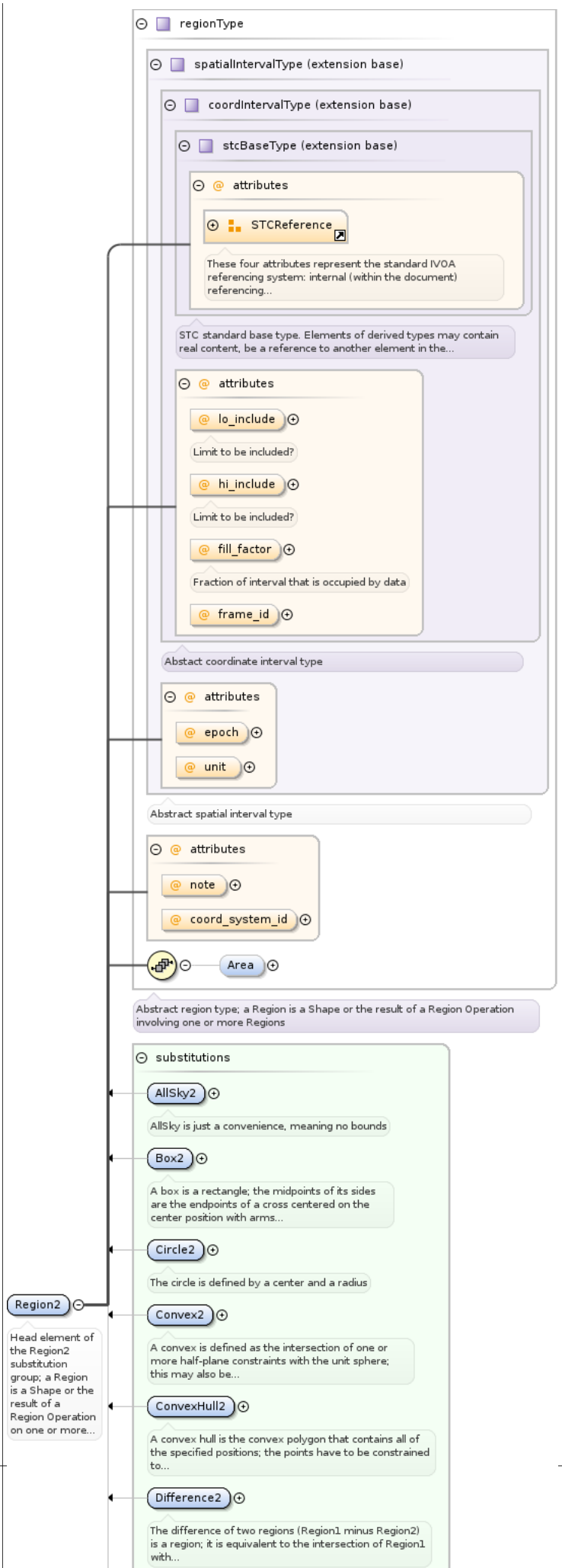
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | Fraction of interval that is occupied by data | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **note** | xs:string | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |

| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |
| Source | <xs:element name="Region" type="regionType" substitutionGroup="PositionInterval" nillable="true"> <xs:annotation> <xs:documentation>Head element of the Region substitution group; a Region is a Shape or the result of a Region Operation on one or more Regions</xs:documentation> </xs:annotation> </xs:element> | | | | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | | | | |

## Element Region2

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Head element of the Region2 substitution group; a Region is a Shape or the result of a Region Operation on one or more Regions |

Diagram


regionType
spatialIntervalType (extension base)
coordIntervalType (extension base)
stcBaseType (extension base)
attributes
STCReference
These four attributes represent the standard IVOA referencing system: internal (within the document) referencing...
STC standard base type. Elements of derived types may contain real content, be a reference to another element in the...
attributes
lo_include
Limit to be included?
hi_include
Limit to be included?
fill_factor
Fraction of interval that is occupied by data
frame_id
Abstact coordinate interval type
attributes
epoch
unit
Abstract spatial interval type
attributes
note
coord_system_id
Area
Abstract region type; a Region is a Shape or the result of a Region Operation involving one or more Regions
substitutions
AllSky2
AllSky is just a convenience, meaning no bounds
Box2
A box is a rectangle; the midpoints of its sides are the endpoints of a cross centered on the center position with arms...
Circle2
The circle is defined by a center and a radius
Convex2
A convex is defined as the intersection of one or more half-plane constraints with the unit sphere; this may also be...
ConvexHull2
A convex hull is the convex polygon that contains all of the specified positions; the points have to be constrained to...
Difference2
The difference of two regions (Region1 minus Region2) is a region; it is equivalent to the intersection of Region1 with...
Region2
Head element of the Region2 substitution group; a Region is a Shape or the result of a Region Operation on one or more...

| | |
|---|---|
| Type | regionType |
| Type hierarchy | • stcBaseType<br>  • coordIntervalType<br>  • spatialIntervalType<br>  • regionType |
| Properties | content: complex<br>nillable: true |
| Substitution Group | • Intersection2<br>• Union2<br>• Negation2<br>• Difference2<br>• AllSky2<br>• Circle2<br>• Ellipse2<br>• Polygon2<br>• Box2<br>• Sector2<br>• Convex2<br>• ConvexHull2<br>• SkyIndex2 |
| Substitution Group Affiliation | • PositionInterval |
| Used by | Complex Type diffType |
| Model | Area{0,1} |
| Children | Area |
| Instance | <Region2 coord_system_id="" epoch="" fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="" www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <Area linearAreaUnit="" validArea="">{0,1}</Area><br></Region2> |

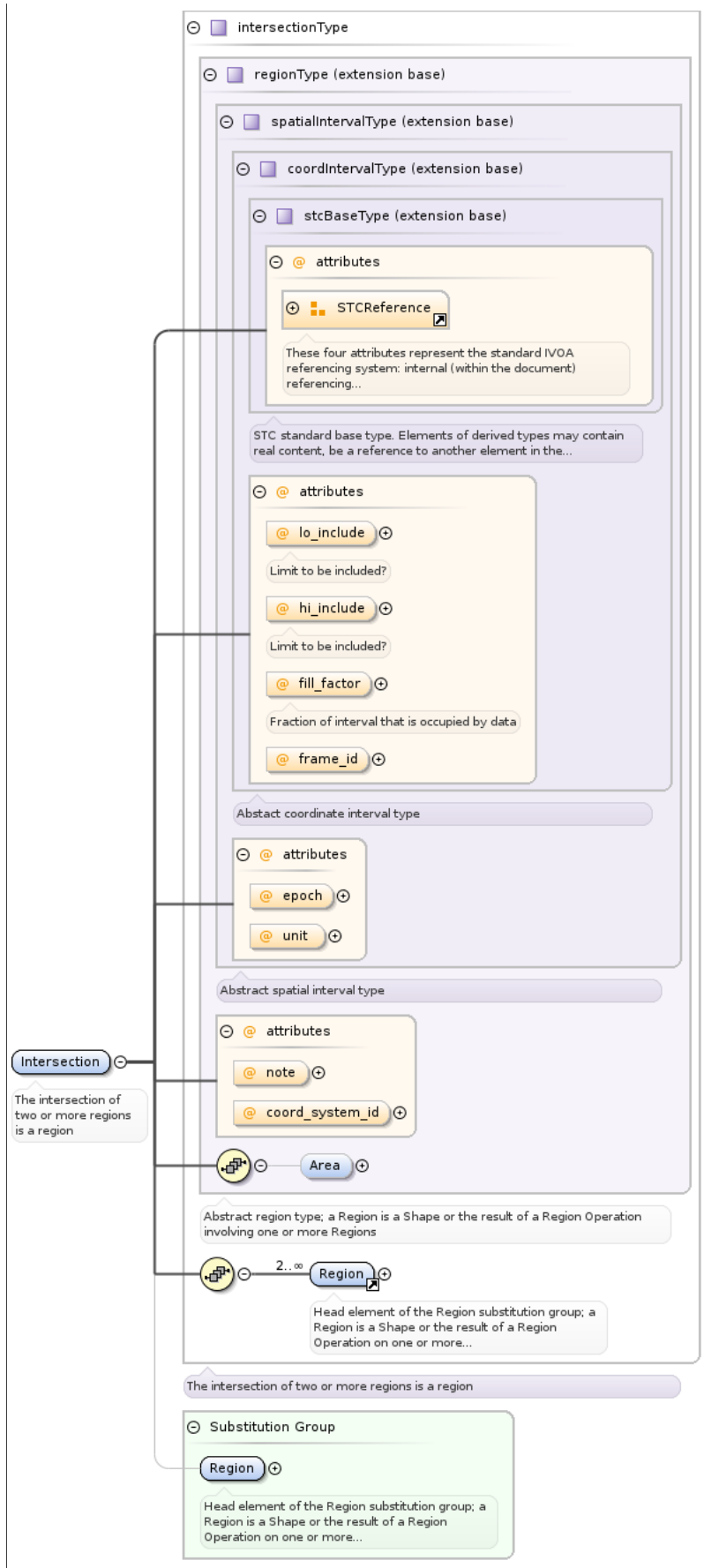
Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | Fraction of interval that is occupied by data | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **note** | xs:string | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |

| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |
| Source | <xs:element name="Region2" type="regionType" substitutionGroup="PositionInterval" nillable="true"> <xs:annotation> <xs:documentation>Head element of the Region2 substitution group; a Region is a Shape or the result of a Region Operation on one or more Regions</xs:documentation> </xs:annotation> </xs:element> | | | | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | | | | |

## Element Intersection

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The intersection of two or more regions is a region |

| | |
|---|---|
| Diagram |  |
| Type | intersectionType |
| Type hierarchy | • stcBaseType |

| | |
|---|---|
| | • coordIntervalType<br>• spatialIntervalType<br>• regionType<br>• intersectionType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • Region |
| Model | Area{0,1} , Region{2,unbounded} |
| Children | Area, Region |
| Instance | <Intersection coord_system_id="" epoch="" fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <Area linearAreaUnit="" validArea="">{0,1}</Area><br>  <Region coord_system_id="" epoch="" fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="<br>Region><br></Intersection> |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | Fraction of interval that is occupied by data | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **note** | xs:string | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

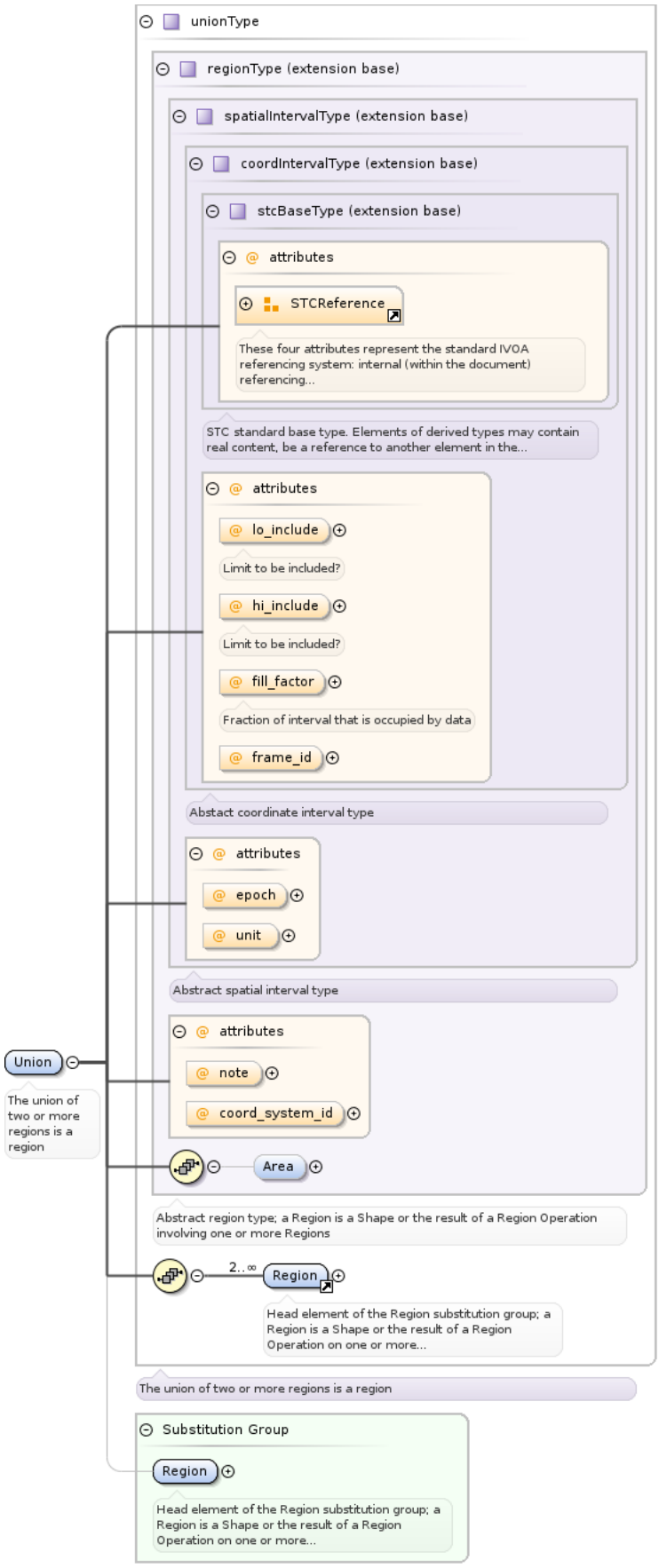
Source

```
<xs:element name="Intersection" type="intersectionType" substitutionGroup="Region"
 nillable="true">
  <xs:annotation>
    <xs:documentation>The intersection of two or more regions is a region</
xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element Union

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The union of two or more regions is a region |

| | |
|---|---|
| Diagram |  |
| Type | unionType |
| Type hierarchy | • stcBaseType |

| | |
|---|---|
| | • coordIntervalType<br>• spatialIntervalType<br>• regionType<br>• unionType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • Region |
| Model | Area{0,1} , Region{2,unbounded} |
| Children | Area, Region |
| Instance | <Union coord_system_id="" epoch="" fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="" I<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <Area linearAreaUnit="" validArea="">{0,1}</Area><br>  <Region coord_system_id="" epoch="" fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="<br>Region><br></Union> |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | Fraction of interval that is occupied by data | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **note** | xs:string | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

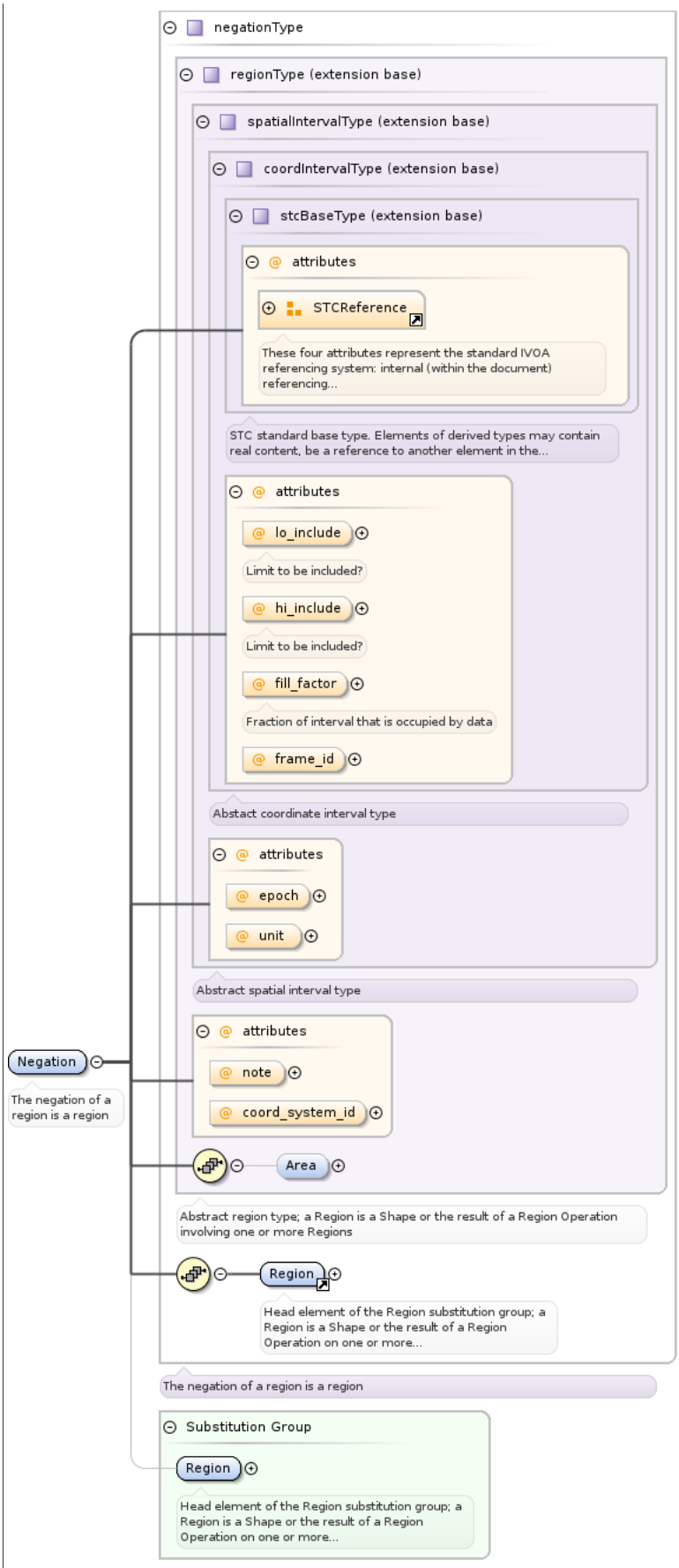
Source

```
<xs:element name="Union" type="unionType" substitutionGroup="Region" nillable="true">
  <xs:annotation>
    <xs:documentation>The union of two or more regions is a region</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element Negation

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The negation of a region is a region |

| | |
|---|---|
| Diagram |  |
| Type | negationType |
| Type hierarchy | • stcBaseType |

| | |
|---|---|
| | • coordIntervalType<br>• spatialIntervalType<br>• regionType<br>• negationType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • Region |
| Model | Area{0,1} , Region |
| Children | Area, Region |
| Instance | <Negation coord_system_id="" epoch="" fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <Area linearAreaUnit="" validArea="">{0,1}</Area><br>  <Region coord_system_id="" epoch="" fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="<br>Region><br></Negation> |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | Fraction of interval that is occupied by data | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **note** | xs:string | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

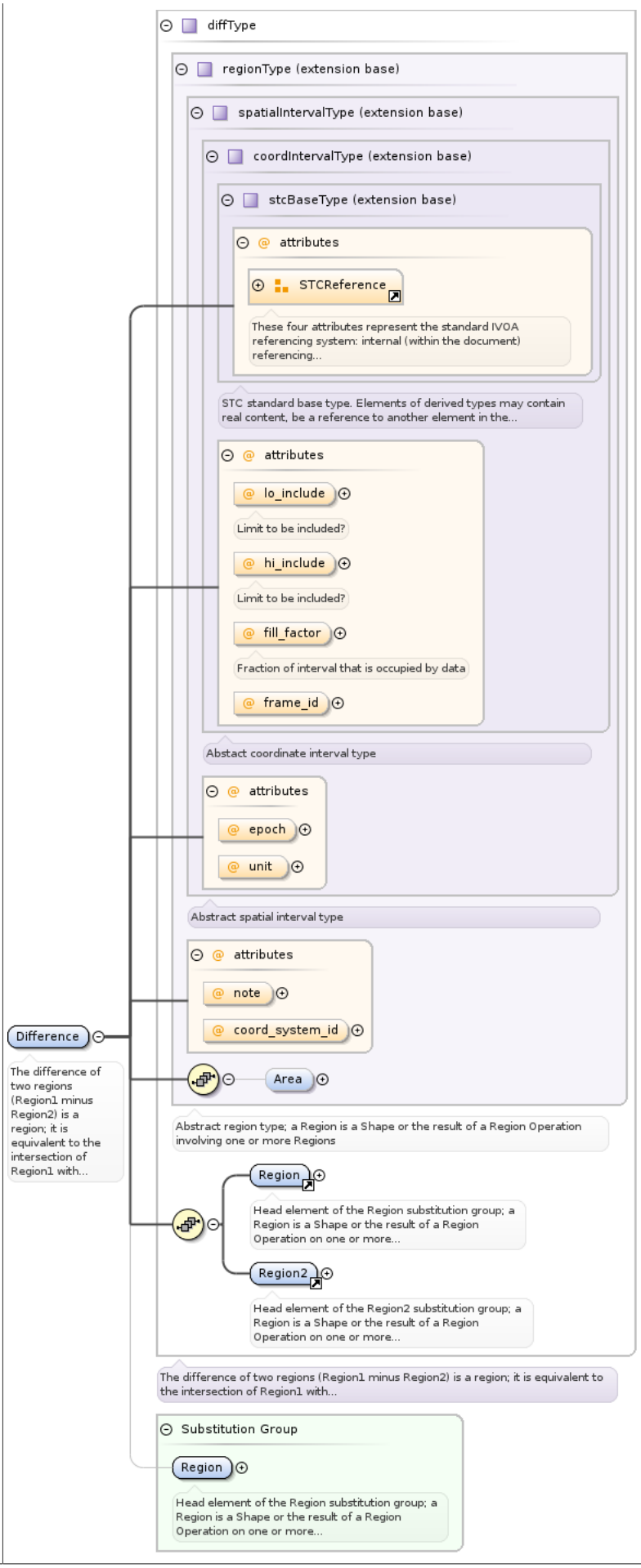
```
<xs:element name="Negation" type="negationType" substitutionGroup="Region"
 nillable="true">
  <xs:annotation>
    <xs:documentation>The negation of a region is a region</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element Difference

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The difference of two regions (Region1 minus Region2) is a region; it is equivalent to the intersection of Region1 with notRegion2 |

Diagram


diffType
regionType (extension base)
spatialIntervalType (extension base)
coordIntervalType (extension base)
stcBaseType (extension base)
attributes
STCReference
These four attributes represent the standard IVOA referencing system: internal (within the document) referencing...
STC standard base type. Elements of derived types may contain real content, be a reference to another element in the...
attributes
lo_include
Limit to be included?
hi_include
Limit to be included?
fill_factor
Fraction of interval that is occupied by data
frame_id
Abstact coordinate interval type
attributes
epoch
unit
Abstract spatial interval type
attributes
note
coord_system_id
Difference
The difference of two regions (Region1 minus Region2) is a region; it is equivalent to the intersection of Region1 with...
Area
Abstract region type; a Region is a Shape or the result of a Region Operation involving one or more Regions
Region
Head element of the Region substitution group; a Region is a Shape or the result of a Region Operation on one or more...
Region2
Head element of the Region2 substitution group; a Region is a Shape or the result of a Region Operation on one or more...
The difference of two regions (Region1 minus Region2) is a region; it is equivalent to the intersection of Region1 with...
Substitution Group
Region
Head element of the Region substitution group; a Region is a Shape or the result of a Region Operation on one or more...

| | |
|---|---|
| Type | diffType |
| Type hierarchy | • stcBaseType<br>  • coordIntervalType<br>  • spatialIntervalType<br>  • regionType<br>  • diffType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • Region |
| Model | Area{0,1} , Region , Region2 |
| Children | Area, Region, Region2 |

Instance

```
<Difference coord_system_id="" epoch="" fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id
www.ivoa.net/xml/STC/stc-v1.30.xsd">
  <Area linearAreaUnit="" validArea="">{0,1}</Area>
  <Region coord_system_id="" epoch="" fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="
Region>
  <Region2 coord_system_id="" epoch="" fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id=
Region2>
</Difference>
```

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | Fraction of interval that is occupied by data | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **note** | xs:string | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

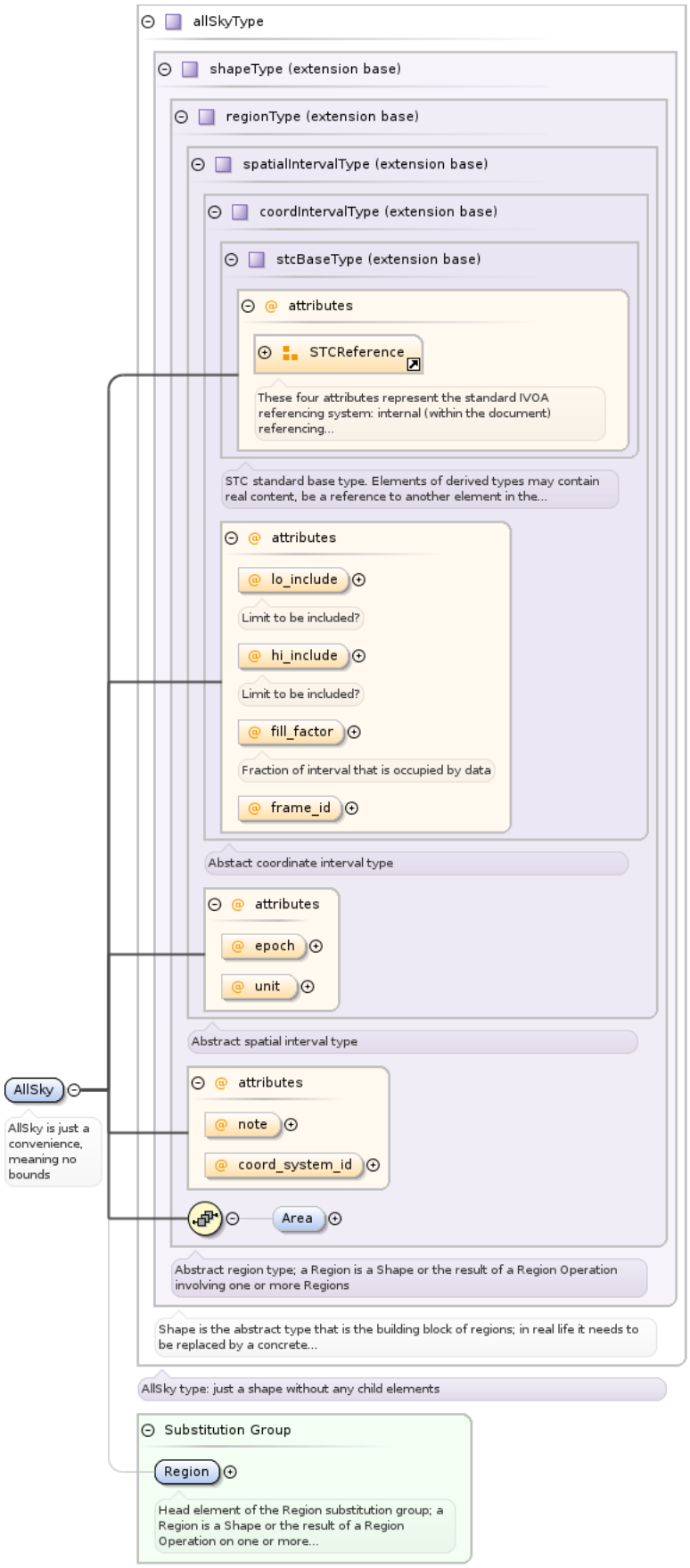
Source

```
<xs:element name="Difference" type="diffType" substitutionGroup="Region" nillable="true">
  <xs:annotation>
    <xs:documentation>The difference of two regions (Region1 minus Region2) is a region;
 it is equivalent to the intersection of Region1 with notRegion2</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element AllSky

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | AllSky is just a convenience, meaning no bounds |

| | |
|---|---|
| Diagram |  |
| Type | allSkyType |
| Type hierarchy | • stcBaseType |

| | |
|---|---|
| | • coordIntervalType<br>• spatialIntervalType<br>• regionType<br>• shapeType<br>• allSkyType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • Region |
| Model | Area{0,1} |
| Children | Area |
| Instance | `<AllSky coord_system_id="" epoch="" fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="" www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Area linearAreaUnit="" validArea="">{0,1}</Area>`<br>`</AllSky>` |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | Fraction of interval that is occupied by data | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **note** | xs:string | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

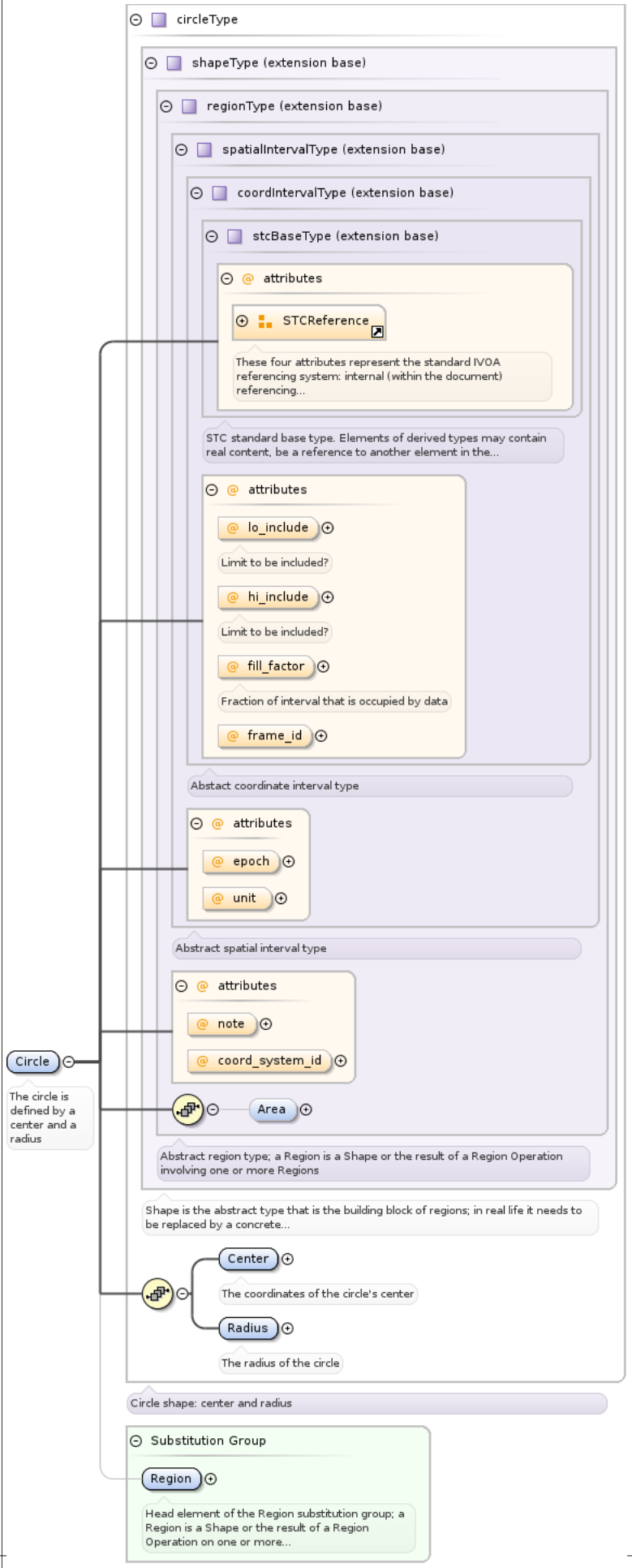
```
<xs:element name="AllSky" type="allSkyType" substitutionGroup="Region" nillable="true">
  <xs:annotation>
    <xs:documentation>AllSky is just a convenience, meaning no bounds</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element Circle

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The circle is defined by a center and a radius |

Diagram


circleType
shapeType (extension base)
regionType (extension base)
spatialIntervalType (extension base)
coordIntervalType (extension base)
stcBaseType (extension base)
attributes
STCReference
These four attributes represent the standard IVOA referencing system: internal (within the document) referencing...
STC standard base type. Elements of derived types may contain real content, be a reference to another element in the...
attributes
lo_include
Limit to be included?
hi_include
Limit to be included?
fill_factor
Fraction of interval that is occupied by data
frame_id
Abstact coordinate interval type
attributes
epoch
unit
Abstract spatial interval type
attributes
note
coord_system_id
Area
Abstract region type; a Region is a Shape or the result of a Region Operation involving one or more Regions
Shape is the abstract type that is the building block of regions; in real life it needs to be replaced by a concrete...
Center
The coordinates of the circle's center
Radius
The radius of the circle
Circle
The circle is defined by a center and a radius
Circle shape: center and radius
Substitution Group
Region
Head element of the Region substitution group; a Region is a Shape or the result of a Region Operation on one or more...

| | |
|---|---|
| Type | circleType |
| Type hierarchy | • stcBaseType<br>  • coordIntervalType<br>  • spatialIntervalType<br>  • regionType<br>  • shapeType<br>  • circleType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • Region |
| Model | Area{0,1} , Center , Radius |
| Children | Area, Center, Radius |

Instance

```
<Circle coord_system_id="" epoch="" fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id=""
www.ivoa.net/xml/STC/stc-v1.30.xsd">
  <Area linearAreaUnit="" validArea="">{0,1}</Area>
  <Center gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" u
Center>
  <Radius gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="
Radius>
</Circle>
```

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | Fraction of interval that is occupied by data | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **note** | xs:string | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

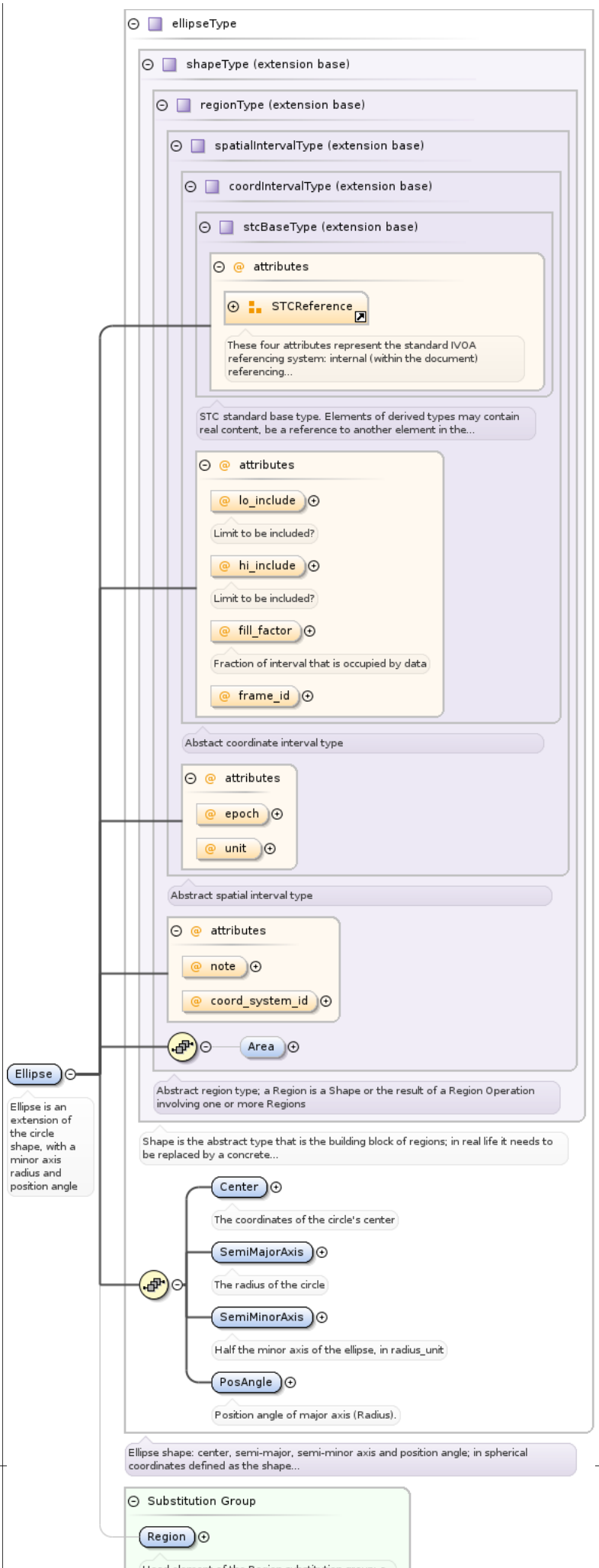
```
<xs:element name="Circle" type="circleType" substitutionGroup="Region" nillable="true">
  <xs:annotation>
    <xs:documentation>The circle is defined by a center and a radius</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element Ellipse

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Ellipse is an extension of the circle shape, with a minor axis radius and position angle |

Diagram


ellipseType
shapeType (extension base)
regionType (extension base)
spatialIntervalType (extension base)
coordIntervalType (extension base)
stcBaseType (extension base)
attributes
STCReference
These four attributes represent the standard IVOA referencing system: internal (within the document) referencing...
STC standard base type. Elements of derived types may contain real content, be a reference to another element in the...
attributes
lo_include
Limit to be included?
hi_include
Limit to be included?
fill_factor
Fraction of interval that is occupied by data
frame_id
Abstact coordinate interval type
attributes
epoch
unit
Abstract spatial interval type
attributes
note
coord_system_id
Area
Abstract region type; a Region is a Shape or the result of a Region Operation involving one or more Regions
Ellipse
Ellipse is an extension of the circle shape, with a minor axis radius and position angle
Shape is the abstract type that is the building block of regions; in real life it needs to be replaced by a concrete...
Center
The coordinates of the circle's center
SemiMajorAxis
The radius of the circle
SemiMinorAxis
Half the minor axis of the ellipse, in radius_unit
PosAngle
Position angle of major axis (Radius).
Ellipse shape: center, semi-major, semi-minor axis and position angle; in spherical coordinates defined as the shape...
Substitution Group
Region

| | |
|---|---|
| Type | ellipseType |
| Type hierarchy | • stcBaseType<br>  • coordIntervalType<br>  • spatialIntervalType<br>  • regionType<br>  • shapeType<br>  • ellipseType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • Region |
| Model | Area{0,1} , Center , SemiMajorAxis , SemiMinorAxis , PosAngle |
| Children | Area, Center, PosAngle, SemiMajorAxis, SemiMinorAxis |

Instance

```
<Ellipse coord_system_id="" epoch="" fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" unit="" lo_include="true" note="" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">
  <Area linearAreaUnit="" validArea="">{0,1}</Area>
  <Center gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" unit="">{0,1}</Center>
  <SemiMajorAxis gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_angle_ucd="" xlink:type="simple" ucd="" unit="">{0,1}</SemiMajorAxis>
  <SemiMinorAxis gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_angle_ucd="" xlink:type="simple" ucd="" unit="">{0,1}</SemiMinorAxis>
  <PosAngle xlink:href="" id="" ID_type="" idref="" IDREF_type="" reference="X" xlink:type="simple" ucd="" unit="">{0,1}</PosAngle>
</Ellipse>
```

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | Fraction of interval that is occupied by data | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **note** | xs:string | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:element name="Ellipse" type="ellipseType" substitutionGroup="Region" nillable="true">
  <xs:annotation>
    <xs:documentation>Ellipse is an extension of the circle shape, with a minor axis
 radius and position angle</xs:documentation>
  </xs:annotation>
</xs:element>
```

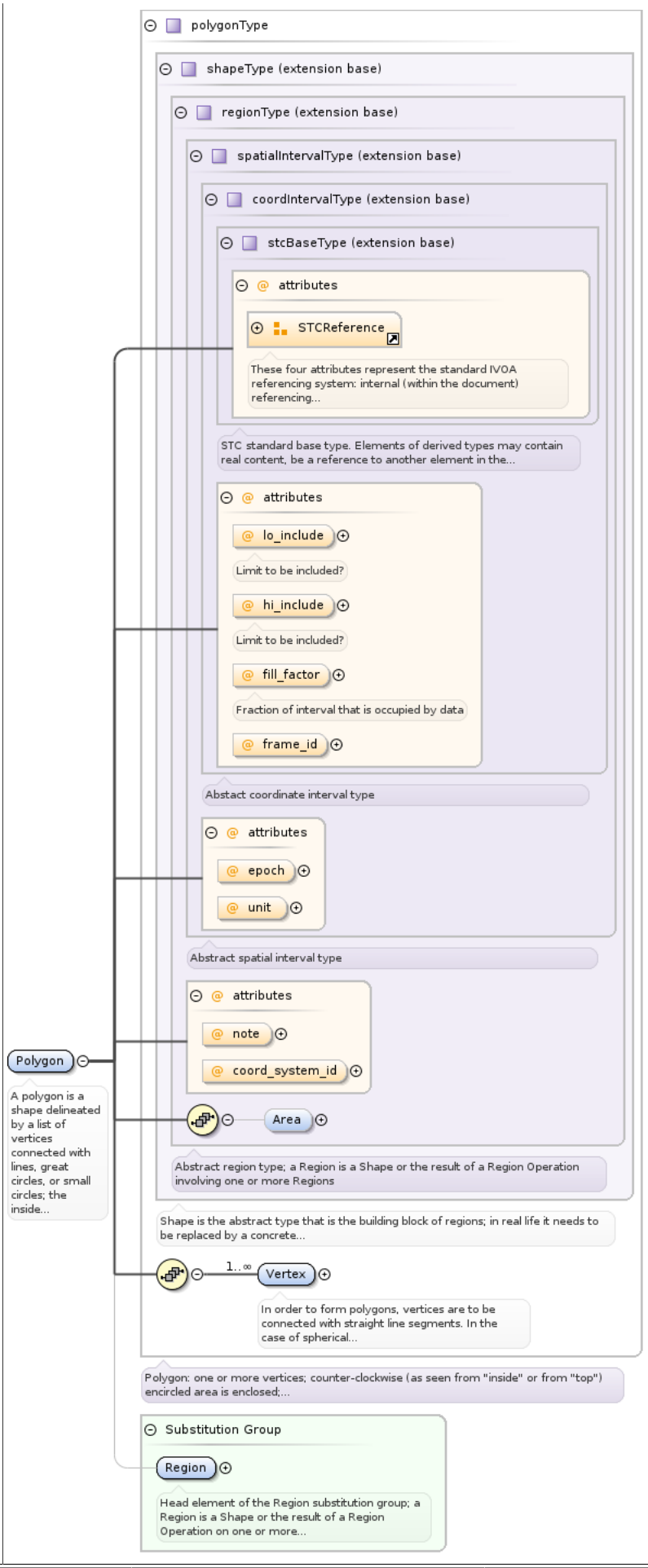
| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element Polygon

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

| | |
|---|---|
| Annotations | A polygon is a shape delineated by a list of vertices connected with lines, great circles, or small circles; the inside of the polygon is circumscribed counter-clockwise by the list of vertices; the polygon may be concave but not self-intersecting; the last vertex in the list is the predecessor of the first. For celestial coordinates it is assumed that we are looking at the sphere from the inside, with Right Ascension increasing to the left. Sides should span less than 180 deg in each coordinate. |

Diagram


polygonType
shapeType (extension base)
regionType (extension base)
spatialIntervalType (extension base)
coordIntervalType (extension base)
stcBaseType (extension base)
attributes
STCReference
These four attributes represent the standard IVOA referencing system: internal (within the document) referencing...
STC standard base type. Elements of derived types may contain real content, be a reference to another element in the...
attributes
lo_include
Limit to be included?
hi_include
Limit to be included?
fill_factor
Fraction of interval that is occupied by data
frame_id
Abstact coordinate interval type
attributes
epoch
unit
Abstract spatial interval type
attributes
note
coord_system_id
Area
Abstract region type; a Region is a Shape or the result of a Region Operation involving one or more Regions
Shape is the abstract type that is the building block of regions; in real life it needs to be replaced by a concrete...
1..∞
Vertex
In order to form polygons, vertices are to be connected with straight line segments. In the case of spherical...
Polygon
A polygon is a shape delineated by a list of vertices connected with lines, great circles, or small circles; the inside...
Polygon: one or more vertices; counter-clockwise (as seen from "inside" or from "top") encircled area is enclosed;...
Substitution Group
Region
Head element of the Region substitution group; a Region is a Shape or the result of a Region Operation on one or more...

| | |
|---|---|
| Type | polygonType |
| Type hierarchy | • stcBaseType<br>  • coordIntervalType<br>  • spatialIntervalType<br>  • regionType<br>  • shapeType<br>  • polygonType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • Region |
| Model | Area{0,1} , Vertex+ |
| Children | Area, Vertex |

Instance

```
<Polygon coord_system_id="" epoch="" fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="" xmlns="http://
www.ivoa.net/xml/STC/stc-v1.30.xsd">
  <Area linearAreaUnit="" validArea="">{0,1}</Area>
  <Vertex>{1,unbounded}</Vertex>
</Polygon>
```

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | Fraction of interval that is occupied by data | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **note** | xs:string | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:element name="Polygon" type="polygonType" substitutionGroup="Region" nillable="true">
  <xs:annotation>
    <xs:documentation>A polygon is a shape delineated by a list of vertices connected
 with lines, great circles, or small circles; the inside of the polygon is circumscribed
 counter-clockwise by the list of vertices; the polygon may be concave but not self-
intersecting; the last vertex in the list is the predecessor of the first. For celestial
 coordinates it is assumed that we are looking at the sphere from the inside, with
 Right Ascension increasing to the left. Sides should span less than 180 deg in each
 coordinate.</xs:documentation>
  </xs:annotation>
</xs:element>
```

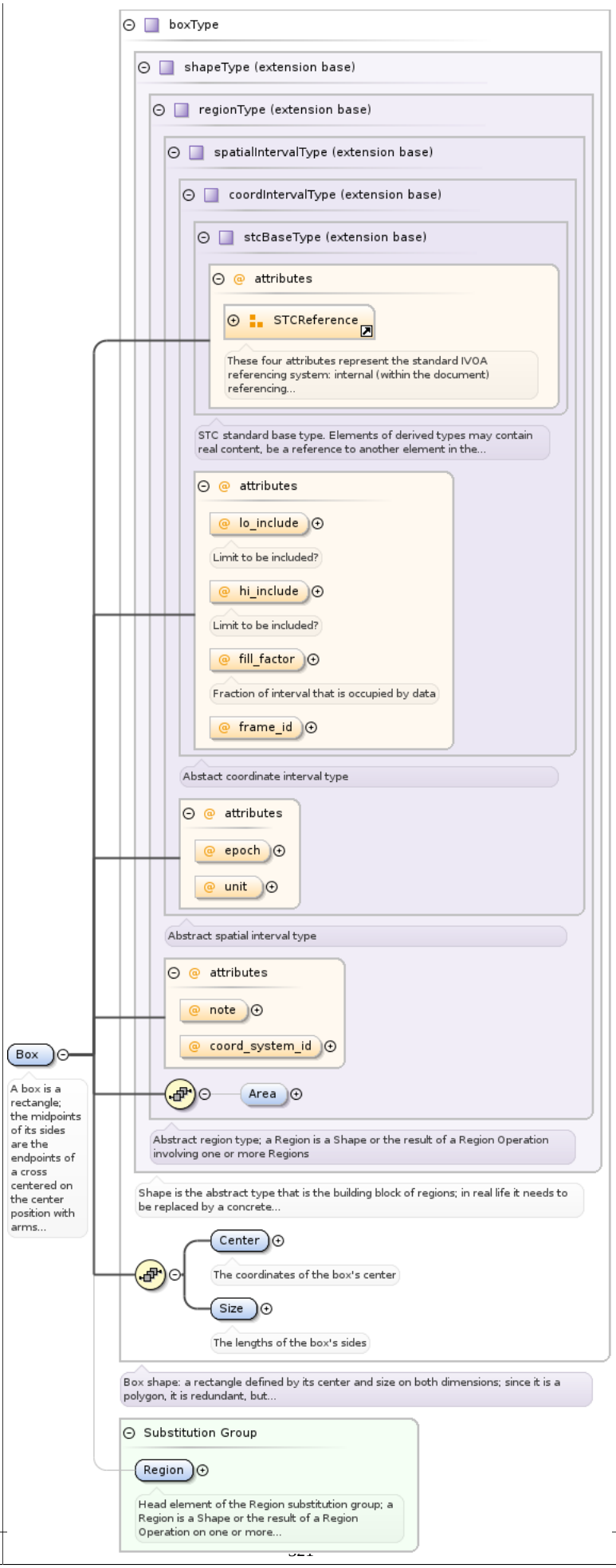
| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element Box

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | A box is a rectangle; the midpoints of its sides are the endpoints of a cross centered on the center position with arms that extend half the size for each coordinate in both |

| | |
|---|---|
| | directions, and the sides are lines or great circles that intersect the cross at its end points at right angles; the arms of the cross are parallel to the coordinate axes at the center point. |

Diagram


boxType
shapeType (extension base)
regionType (extension base)
spatialIntervalType (extension base)
coordIntervalType (extension base)
stcBaseType (extension base)
attributes
STCReference
These four attributes represent the standard IVOA referencing system: internal (within the document) referencing...
STC standard base type. Elements of derived types may contain real content, be a reference to another element in the...
attributes
lo_include
Limit to be included?
hi_include
Limit to be included?
fill_factor
Fraction of interval that is occupied by data
frame_id
Abstact coordinate interval type
attributes
epoch
unit
Abstract spatial interval type
attributes
note
coord_system_id
Area
Abstract region type; a Region is a Shape or the result of a Region Operation involving one or more Regions
Box
A box is a rectangle; the midpoints of its sides are the endpoints of a cross centered on the center position with arms...
Shape is the abstract type that is the building block of regions; in real life it needs to be replaced by a concrete...
Center
The coordinates of the box's center
Size
The lengths of the box's sides
Box shape: a rectangle defined by its center and size on both dimensions; since it is a polygon, it is redundant, but...
Substitution Group
Region
Head element of the Region substitution group; a Region is a Shape or the result of a Region Operation on one or more...

| | |
|---|---|
| Type | boxType |
| Type hierarchy | • stcBaseType<br>• coordIntervalType<br>• spatialIntervalType<br>• regionType<br>• shapeType<br>• boxType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • Region |
| Model | Area{0,1} , Center , Size |
| Children | Area, Center, Size |
| Instance | `<Box coord_system_id="" epoch="" fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="" ID_ www.ivoa.net/xml/STC/stc-v1.30.xsd"> <Area linearAreaUnit="" validArea="">{0,1}</Area> <Center gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" u Center> <Size gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" uni Size> </Box>` |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | Fraction of interval that is occupied by data | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **note** | xs:string | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:element name="Box" type="boxType" substitutionGroup="Region" nillable="true">
  <xs:annotation>
    <xs:documentation>A box is a rectangle; the midpoints of its sides are the endpoints
 of a cross centered on the center position with arms that extend half the size for each
 coordinate in both directions, and the sides are lines or great circles that intersect
 the cross at its end points at right angles; the arms of the cross are parallel to the
 coordinate axes at the center point.</xs:documentation>
  </xs:annotation>
</xs:element>
```

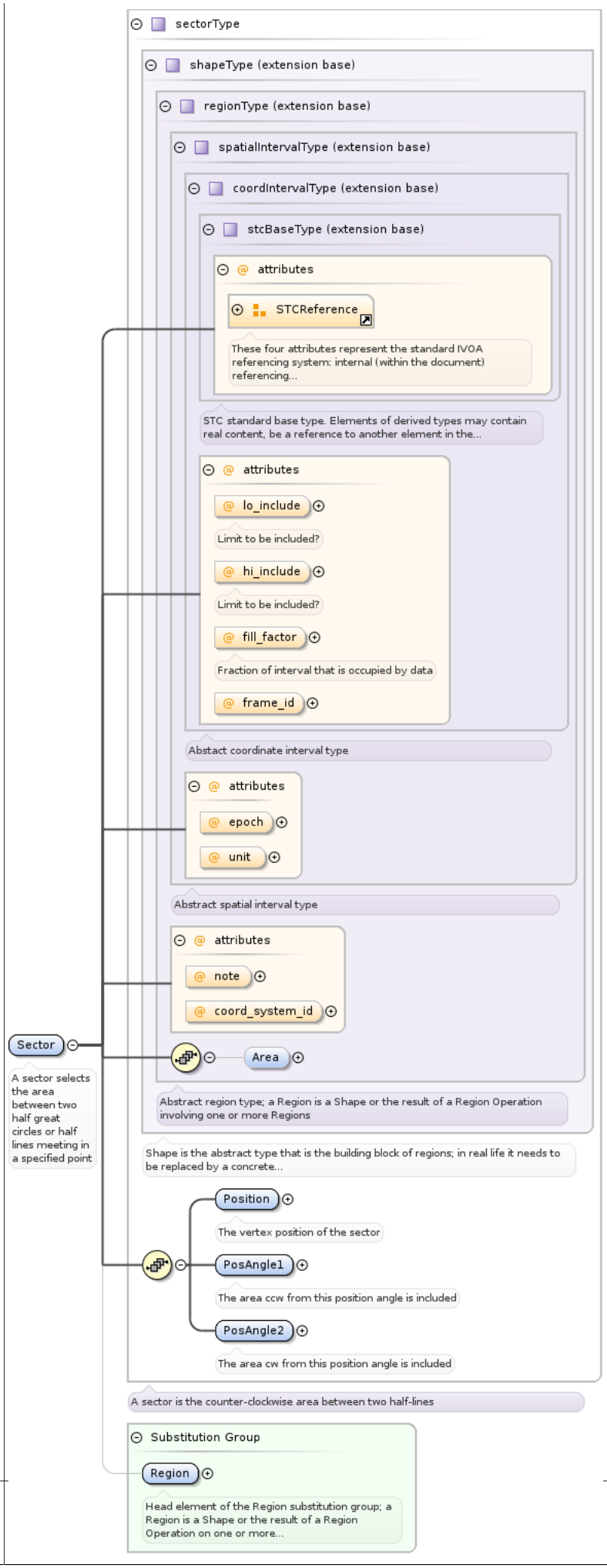
| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element Sector

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

| | |
|---|---|
| Annotations | A sector selects the area between two half great circles or half lines meeting in a specified point |

Diagram


sectorType
shapeType (extension base)
regionType (extension base)
spatialIntervalType (extension base)
coordIntervalType (extension base)
stcBaseType (extension base)
attributes
STCReference
These four attributes represent the standard IVOA referencing system: internal (within the document) referencing...
STC standard base type. Elements of derived types may contain real content, be a reference to another element in the...
attributes
lo_include
Limit to be included?
hi_include
Limit to be included?
fill_factor
Fraction of interval that is occupied by data
frame_id
Abstact coordinate interval type
attributes
epoch
unit
Abstract spatial interval type
attributes
note
coord_system_id
Area
Abstract region type; a Region is a Shape or the result of a Region Operation involving one or more Regions
Shape is the abstract type that is the building block of regions; in real life it needs to be replaced by a concrete...
Position
The vertex position of the sector
PosAngle1
The area ccw from this position angle is included
PosAngle2
The area cw from this position angle is included
A sector is the counter-clockwise area between two half-lines
Sector
A sector selects the area between two half great circles or half lines meeting in a specified point
Substitution Group
Region
Head element of the Region substitution group; a Region is a Shape or the result of a Region Operation on one or more...

| | |
|---|---|
| Type | sectorType |
| Type hierarchy | • stcBaseType<br>• coordIntervalType<br>• spatialIntervalType<br>• regionType<br>• shapeType<br>• sectorType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • Region |
| Model | Area{0,1} , Position , PosAngle1 , PosAngle2 |
| Children | Area, PosAngle1, PosAngle2, Position |

Instance

```
<Sector coord_system_id="" epoch="" fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="" www.ivoa.net/xml/STC/stc-v1.30.xsd">
  <Area linearAreaUnit="" validArea="">{0,1}</Area>
  <Position gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" Position>
  <PosAngle1 xlink:href="" id="" ID_type="" idref="" IDREF_type="" reference="X" xlink:type="simple" ucd PosAngle1>
  <PosAngle2 xlink:href="" id="" ID_type="" idref="" IDREF_type="" reference="X" xlink:type="simple" ucd PosAngle2>
</Sector>
```

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | Fraction of interval that is occupied by data | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **note** | xs:string | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:element name="Sector" type="sectorType" substitutionGroup="Region" nillable="true">
  <xs:annotation>
    <xs:documentation>A sector selects the area between two half great circles or half
 lines meeting in a specified point</xs:documentation>
  </xs:annotation>
</xs:element>
```

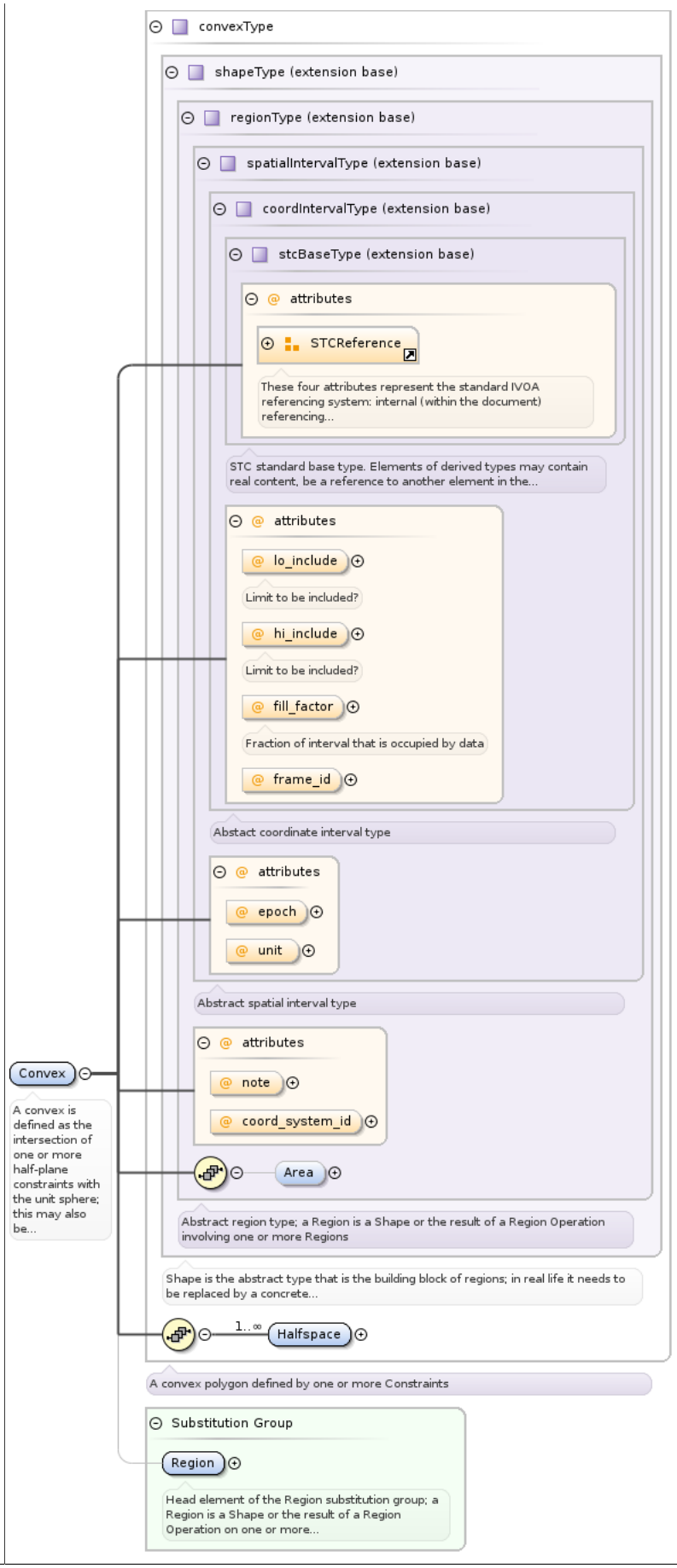
| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element Convex

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

| | |
|---|---|
| Annotations | A convex is defined as the intersection of one or more half-plane constraints with the unit sphere; this may also be described as the union of one or more convex polygons bounded by one or more constraint planes |

Diagram


convexType
shapeType (extension base)
regionType (extension base)
spatialIntervalType (extension base)
coordIntervalType (extension base)
stcBaseType (extension base)
attributes
STCReference
These four attributes represent the standard IVOA referencing system: internal (within the document) referencing...
STC standard base type. Elements of derived types may contain real content, be a reference to another element in the...
attributes
lo_include
Limit to be included?
hi_include
Limit to be included?
fill_factor
Fraction of interval that is occupied by data
frame_id
Abstact coordinate interval type
attributes
epoch
unit
Abstract spatial interval type
attributes
note
coord_system_id
Area
Abstract region type; a Region is a Shape or the result of a Region Operation involving one or more Regions
Shape is the abstract type that is the building block of regions; in real life it needs to be replaced by a concrete...
1..∞
Halfspace
Convex
A convex is defined as the intersection of one or more half-plane constraints with the unit sphere; this may also be...
A convex polygon defined by one or more Constraints
Substitution Group
Region
Head element of the Region substitution group; a Region is a Shape or the result of a Region Operation on one or more...

| | |
|---|---|
| Type | convexType |
| Type hierarchy | • stcBaseType<br>• coordIntervalType<br>• spatialIntervalType<br>• regionType<br>• shapeType<br>• convexType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • Region |
| Model | Area{0,1} , Halfspace+ |
| Children | Area, Halfspace |
| Instance | `<Convex coord_system_id="" epoch="" fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="" www.ivoa.net/xml/STC/stc-v1.30.xsd"><Area linearAreaUnit="" validArea="">{0,1}</Area><Halfspace>{1,unbounded}</Halfspace></Convex>` |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | Fraction of interval that is occupied by data | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **note** | xs:string | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

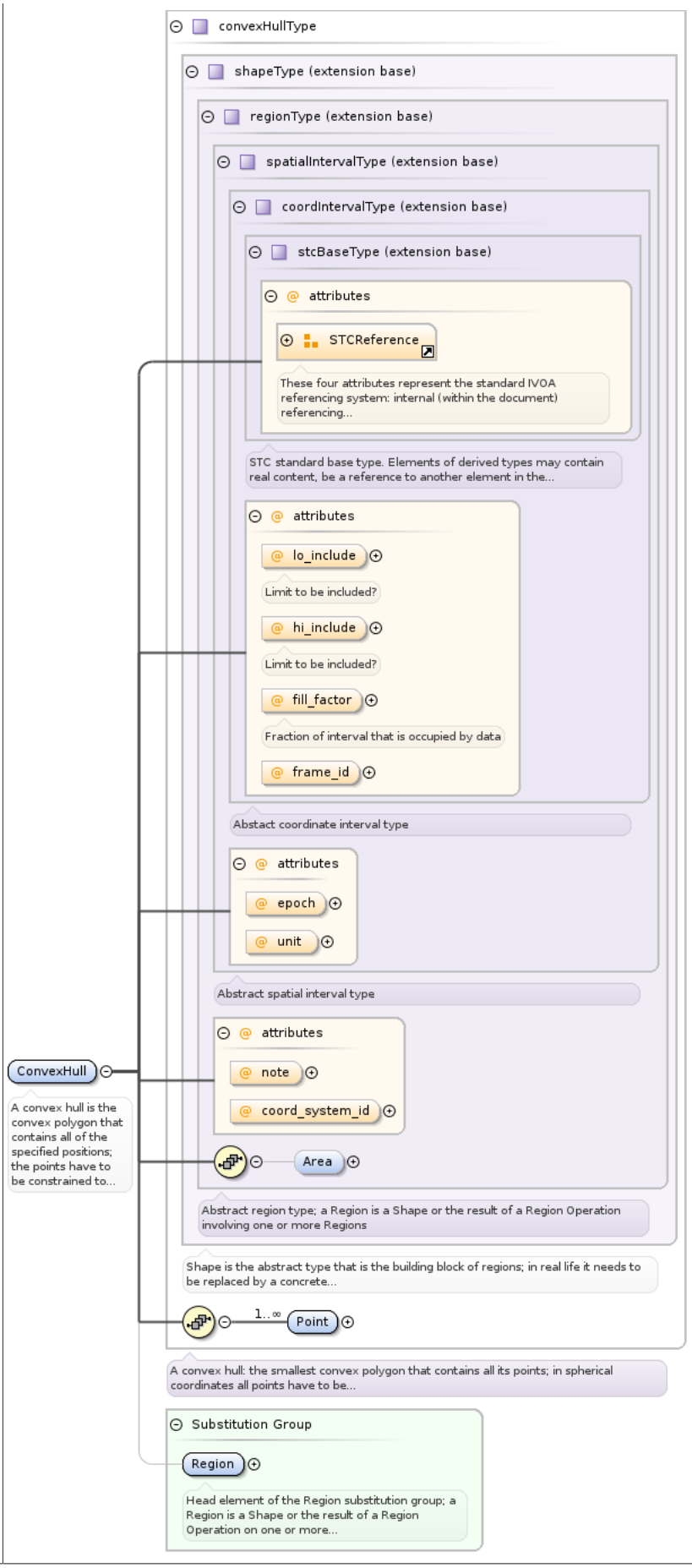
```
<xs:element name="Convex" type="convexType" substitutionGroup="Region" nillable="true">
  <xs:annotation>
    <xs:documentation>A convex is defined as the intersection of one or more half-plane
 constraints with the unit sphere; this may also be described as the union of one or more
 convex polygons bounded by one or more constraint planes</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element ConvexHull

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | A convex hull is the convex polygon that contains all of the specified positions; the points have to be constrained to lie in one hemisphere |

Diagram


convexHullType
shapeType (extension base)
regionType (extension base)
spatialIntervalType (extension base)
coordIntervalType (extension base)
stcBaseType (extension base)
attributes
STCReference
These four attributes represent the standard IVOA referencing system: internal (within the document) referencing...
STC standard base type. Elements of derived types may contain real content, be a reference to another element in the...
attributes
lo_include
Limit to be included?
hi_include
Limit to be included?
fill_factor
Fraction of interval that is occupied by data
frame_id
Abstact coordinate interval type
attributes
epoch
unit
Abstract spatial interval type
attributes
note
coord_system_id
Area
Abstract region type; a Region is a Shape or the result of a Region Operation involving one or more Regions
Shape is the abstract type that is the building block of regions; in real life it needs to be replaced by a concrete...
1..∞
Point
A convex hull: the smallest convex polygon that contains all its points; in spherical coordinates all points have to be...
ConvexHull
A convex hull is the convex polygon that contains all of the specified positions; the points have to be constrained to...
Substitution Group
Region
Head element of the Region substitution group; a Region is a Shape or the result of a Region Operation on one or more...

| | |
|---|---|
| Type | convexHullType |
| Type hierarchy | • stcBaseType<br>  • coordIntervalType<br>  • spatialIntervalType<br>  • regionType<br>  • shapeType<br>  • convexHullType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • Region |
| Model | Area{0,1} , Point+ |
| Children | Area, Point |

Instance

```
<ConvexHull coord_system_id="" epoch="" fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id
www.ivoa.net/xml/STC/stc-v1.30.xsd">
  <Area linearAreaUnit="" validArea="">{0,1}</Area>
  <Point gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" un
Point>
</ConvexHull>
```

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | Fraction of interval that is occupied by data | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **note** | xs:string | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

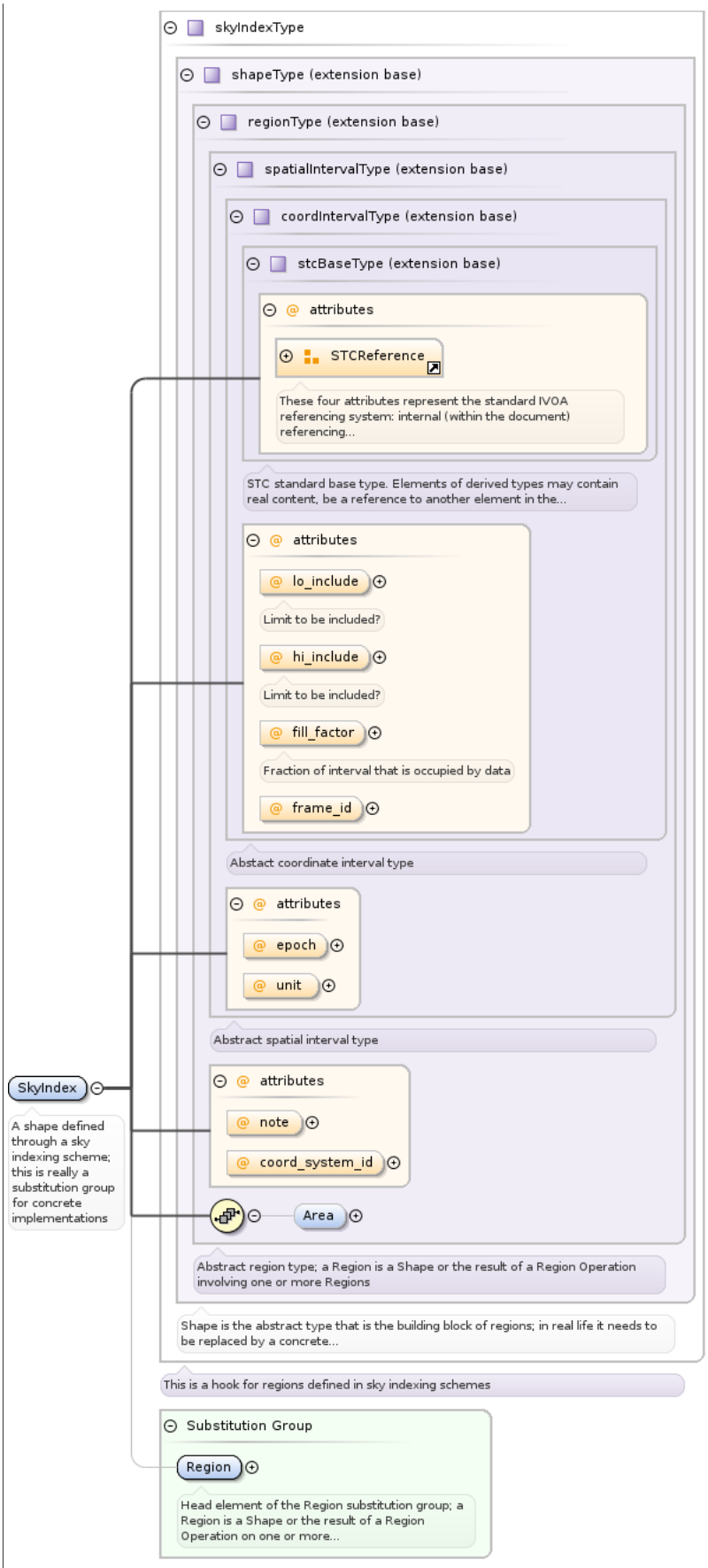
Source

```
<xs:element name="ConvexHull" type="convexHullType" substitutionGroup="Region"
 nillable="true">
  <xs:annotation>
    <xs:documentation>A convex hull is the convex polygon that contains all of the
 specified positions; the points have to be constrained to lie in one hemisphere</
xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element SkyIndex

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | A shape defined through a sky indexing scheme; this is really a substitution group for concrete implementations |

| | |
|---|---|
| Diagram |  |
| Type | skyIndexType |
| Type hierarchy | • stcBaseType |

| | |
|---|---|
| | • coordIntervalType<br>• spatialIntervalType<br>• regionType<br>• shapeType<br>• skyIndexType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • Region |
| Model | Area{0,1} |
| Children | Area |
| Instance | <SkyIndex coord_system_id="" epoch="" fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <Area linearAreaUnit="" validArea="">{0,1}</Area><br></SkyIndex> |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | Fraction of interval that is occupied by data | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **note** | xs:string | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

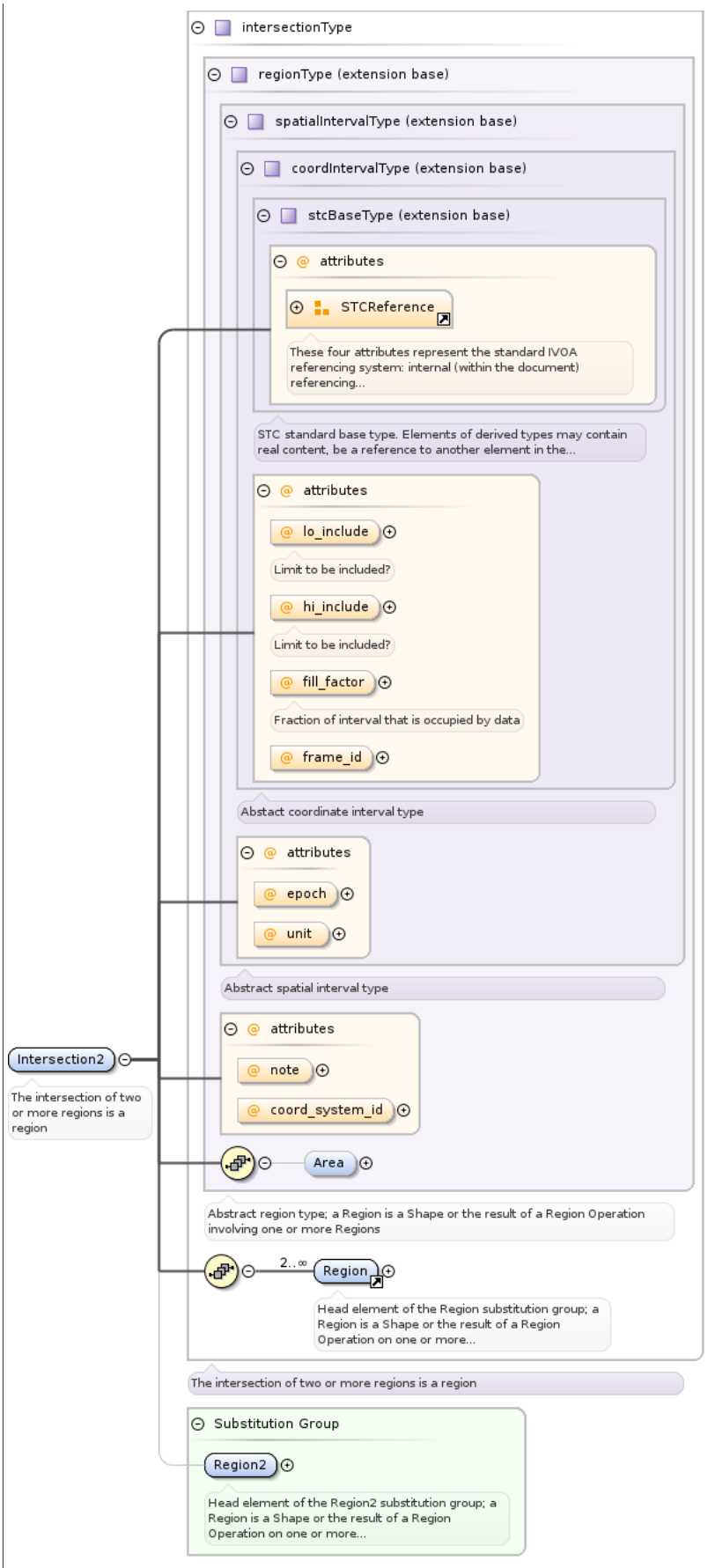
Source

```
<xs:element name="SkyIndex" type="skyIndexType" substitutionGroup="Region"
 nillable="true">
  <xs:annotation>
    <xs:documentation>A shape defined through a sky indexing scheme; this is really a
 substitution group for concrete implementations</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element Intersection2

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The intersection of two or more regions is a region |

| | |
|---|---|
| Diagram |  |
| Type | intersectionType |
| Type hierarchy | • stcBaseType |

| | |
|---|---|
| | • coordIntervalType<br>• spatialIntervalType<br>• regionType<br>• intersectionType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • Region2 |
| Model | Area{0,1} , Region{2,unbounded} |
| Children | Area, Region |
| Instance | <Intersection2 coord_system_id="" epoch="" fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <Area linearAreaUnit="" validArea="">{0,1}</Area><br>  <Region coord_system_id="" epoch="" fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="<br>Region><br></Intersection2> |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | Fraction of interval that is occupied by data | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **note** | xs:string | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

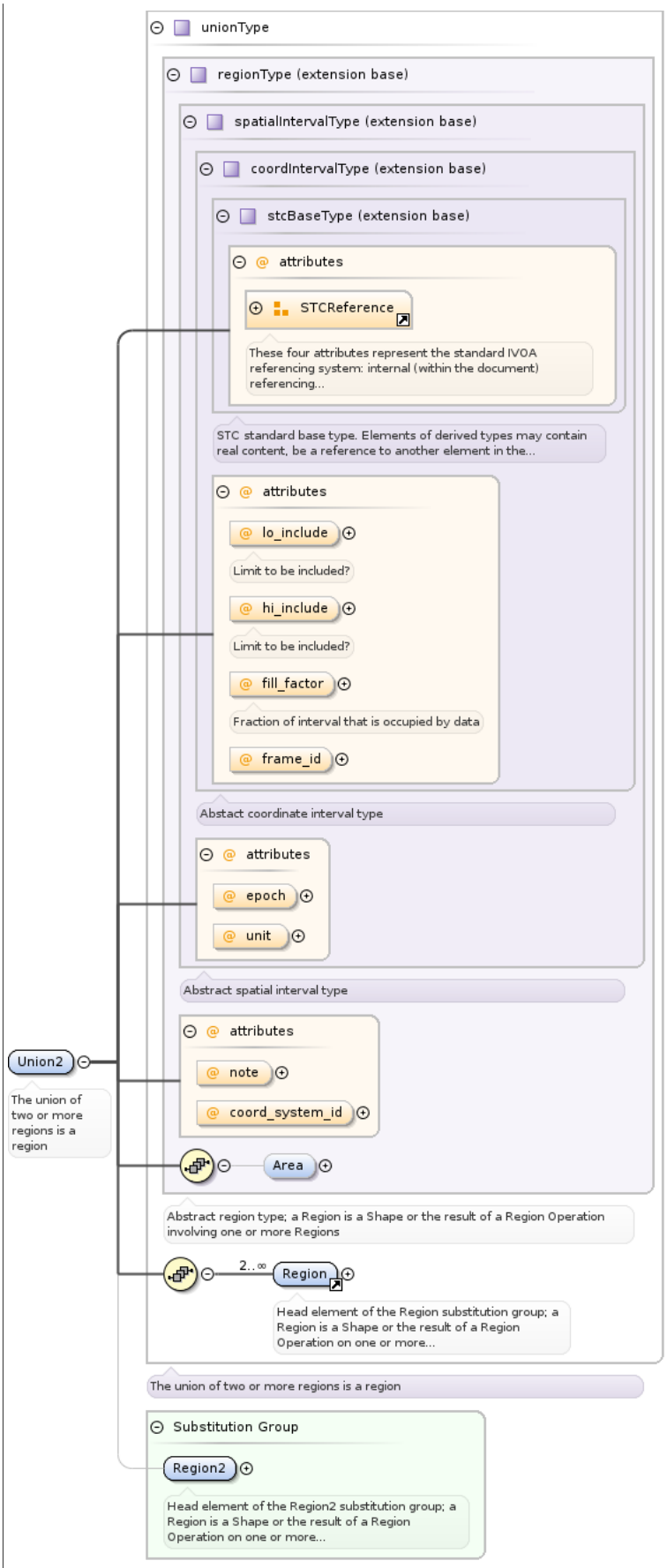
Source

```
<xs:element name="Intersection2" type="intersectionType" substitutionGroup="Region2"
 nillable="true">
  <xs:annotation>
    <xs:documentation>The intersection of two or more regions is a region</
xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element Union2

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The union of two or more regions is a region |

| | |
|---|---|
| Diagram |  |
| Type | unionType |
| Type hierarchy | • stcBaseType |

| | |
|---|---|
| | • coordIntervalType<br>• spatialIntervalType<br>• regionType<br>• unionType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • Region2 |
| Model | Area{0,1} , Region{2,unbounded} |
| Children | Area, Region |
| Instance | <Union2 coord_system_id="" epoch="" fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="" www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <Area linearAreaUnit="" validArea="">{0,1}</Area><br>  <Region coord_system_id="" epoch="" fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="<br>Region><br></Union2> |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | Fraction of interval that is occupied by data | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **note** | xs:string | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

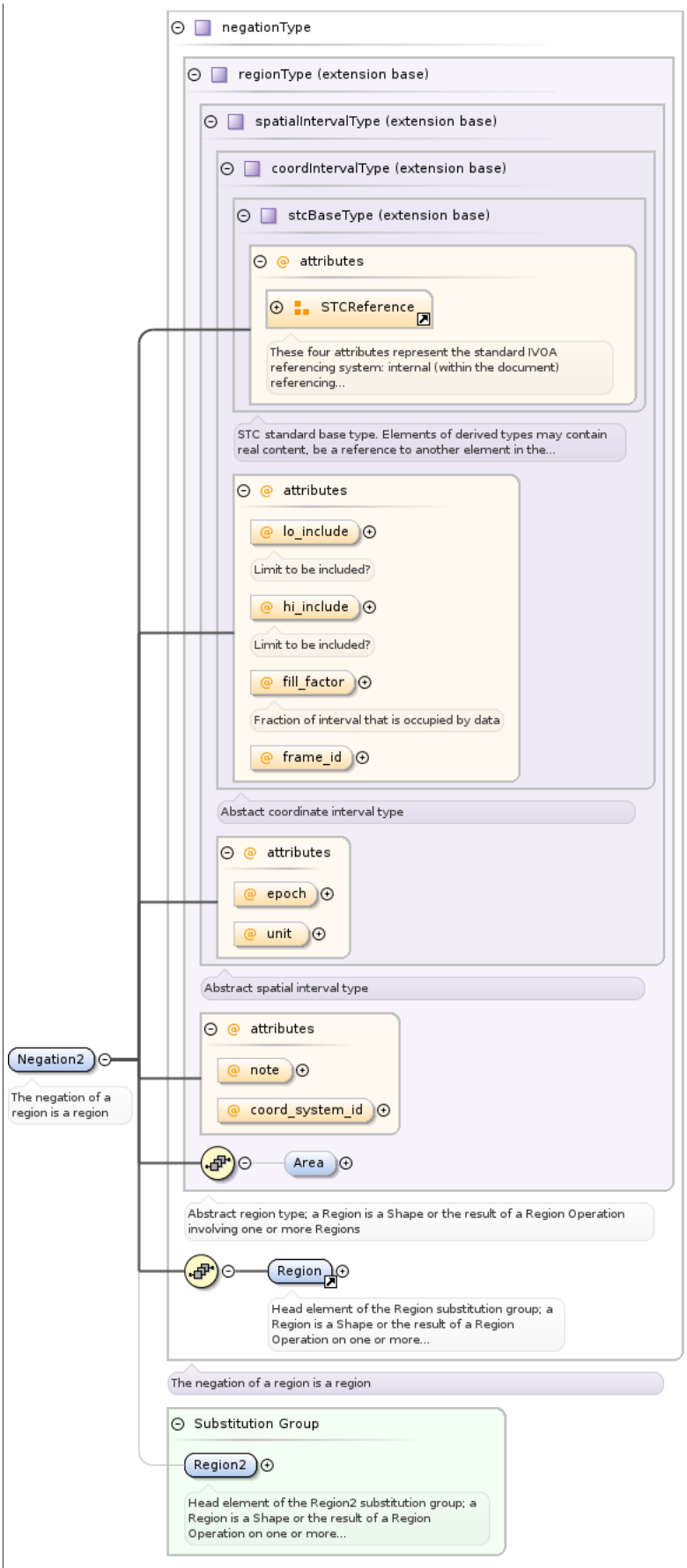
Source

```
<xs:element name="Union2" type="unionType" substitutionGroup="Region2" nillable="true">
  <xs:annotation>
    <xs:documentation>The union of two or more regions is a region</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element Negation2

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The negation of a region is a region |

| | |
|---|---|
| Diagram |  |
| Type | negationType |
| Type hierarchy | • stcBaseType |

| | |
|---|---|
| | • coordIntervalType<br>• spatialIntervalType<br>• regionType<br>• negationType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • Region2 |
| Model | Area{0,1} , Region |
| Children | Area, Region |
| Instance | <Negation2 coord_system_id="" epoch="" fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id=<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br><Area linearAreaUnit="" validArea="">{0,1}</Area><br><Region coord_system_id="" epoch="" fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="<br>Region><br></Negation2> |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | Fraction of interval that is occupied by data | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **note** | xs:string | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

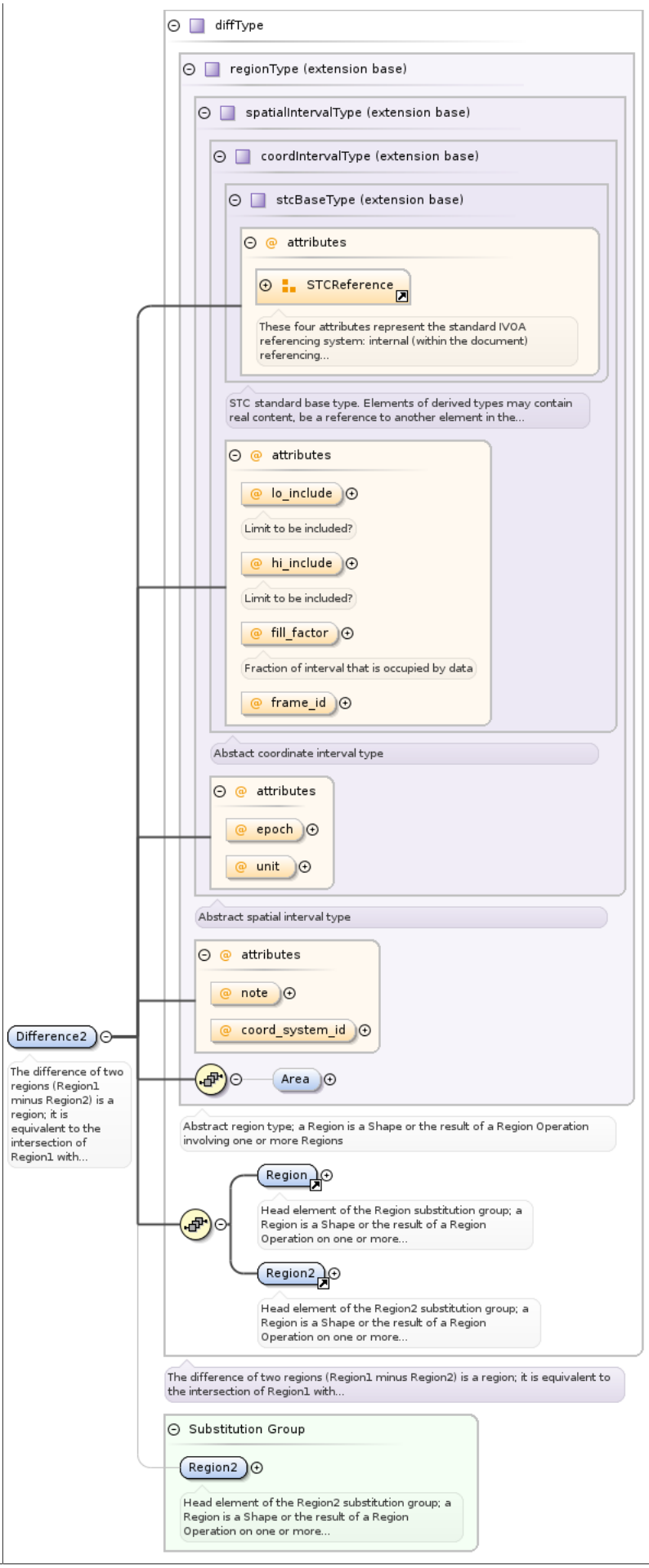
```
<xs:element name="Negation2" type="negationType" substitutionGroup="Region2"
 nillable="true">
  <xs:annotation>
    <xs:documentation>The negation of a region is a region</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element Difference2

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The difference of two regions (Region1 minus Region2) is a region; it is equivalent to the intersection of Region1 with notRegion2 |

Diagram


diffType
regionType (extension base)
spatialIntervalType (extension base)
coordIntervalType (extension base)
stcBaseType (extension base)
attributes
STCReference
These four attributes represent the standard IVOA referencing system: internal (within the document) referencing...
STC standard base type. Elements of derived types may contain real content, be a reference to another element in the...
attributes
lo_include
Limit to be included?
hi_include
Limit to be included?
fill_factor
Fraction of interval that is occupied by data
frame_id
Abstact coordinate interval type
attributes
epoch
unit
Abstract spatial interval type
attributes
note
coord_system_id
Area
Abstract region type; a Region is a Shape or the result of a Region Operation involving one or more Regions
Region
Head element of the Region substitution group; a Region is a Shape or the result of a Region Operation on one or more...
Region2
Head element of the Region2 substitution group; a Region is a Shape or the result of a Region Operation on one or more...
The difference of two regions (Region1 minus Region2) is a region; it is equivalent to the intersection of Region1 with...
Difference2
The difference of two regions (Region1 minus Region2) is a region; it is equivalent to the intersection of Region1 with...
Substitution Group
Region2
Head element of the Region2 substitution group; a Region is a Shape or the result of a Region Operation on one or more...

| | |
|---|---|
| Type | diffType |
| Type hierarchy | • stcBaseType<br>  • coordIntervalType<br>  • spatialIntervalType<br>  • regionType<br>  • diffType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • Region2 |
| Model | Area{0,1} , Region , Region2 |
| Children | Area, Region, Region2 |

Instance

```
<Difference2 coord_system_id="" epoch="" fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" i
www.ivoa.net/xml/STC/stc-v1.30.xsd">
  <Area linearAreaUnit="" validArea="">{0,1}</Area>
  <Region coord_system_id="" epoch="" fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="
Region>
  <Region2 coord_system_id="" epoch="" fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id=
Region2>
</Difference2>
```

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | Fraction of interval that is occupied by data | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **note** | xs:string | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

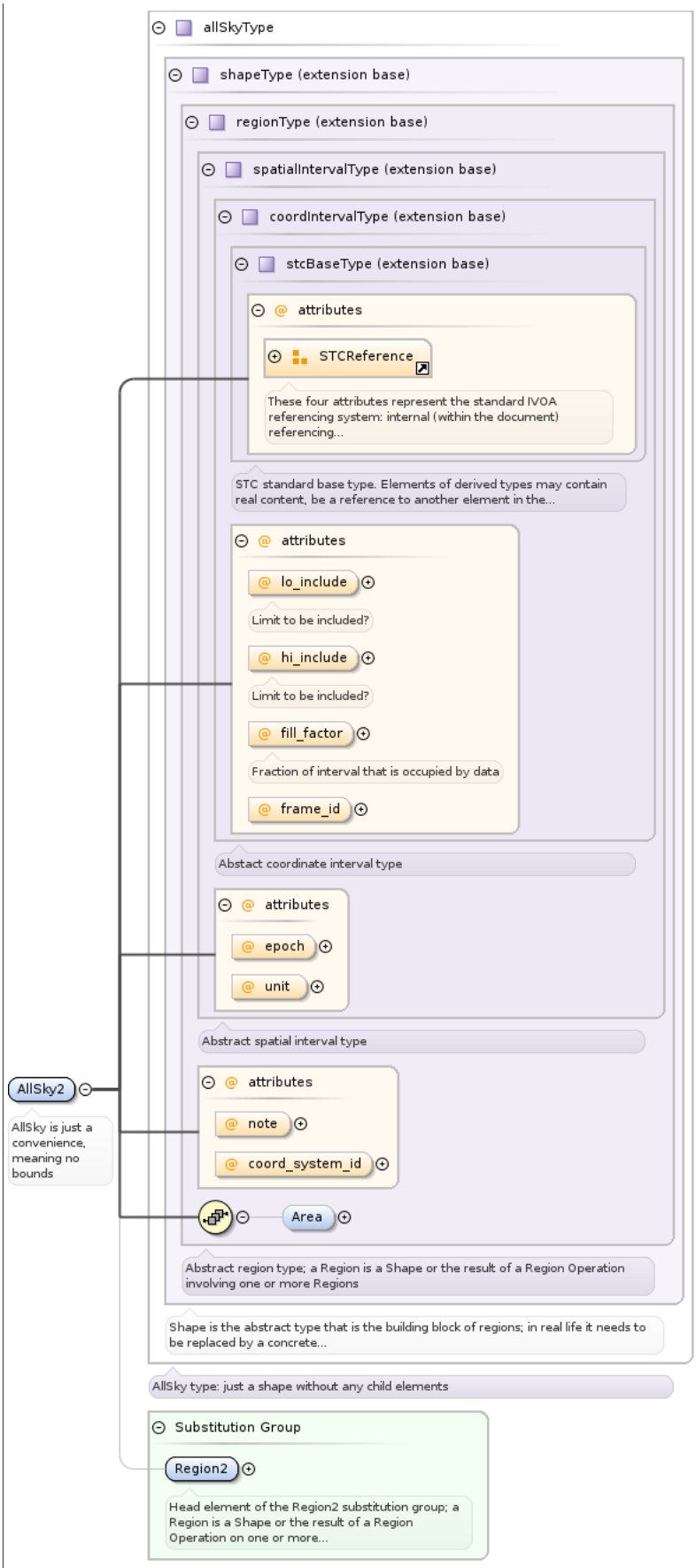
Source

```
<xs:element name="Difference2" type="diffType" substitutionGroup="Region2"
 nillable="true">
  <xs:annotation>
    <xs:documentation>The difference of two regions (Region1 minus Region2) is a region;
 it is equivalent to the intersection of Region1 with notRegion2</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element AllSky2

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | AllSky is just a convenience, meaning no bounds |

| | |
|---|---|
| Diagram |  |
| Type | allSkyType |
| Type hierarchy | • stcBaseType |

| | |
|---|---|
| | • coordIntervalType<br>• spatialIntervalType<br>• regionType<br>• shapeType<br>• allSkyType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • Region2 |
| Model | Area{0,1} |
| Children | Area |
| Instance | `<AllSky2 coord_system_id="" epoch="" fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="" www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Area linearAreaUnit="" validArea="">{0,1}</Area>`<br>`</AllSky2>` |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | Fraction of interval that is occupied by data | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **note** | xs:string | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

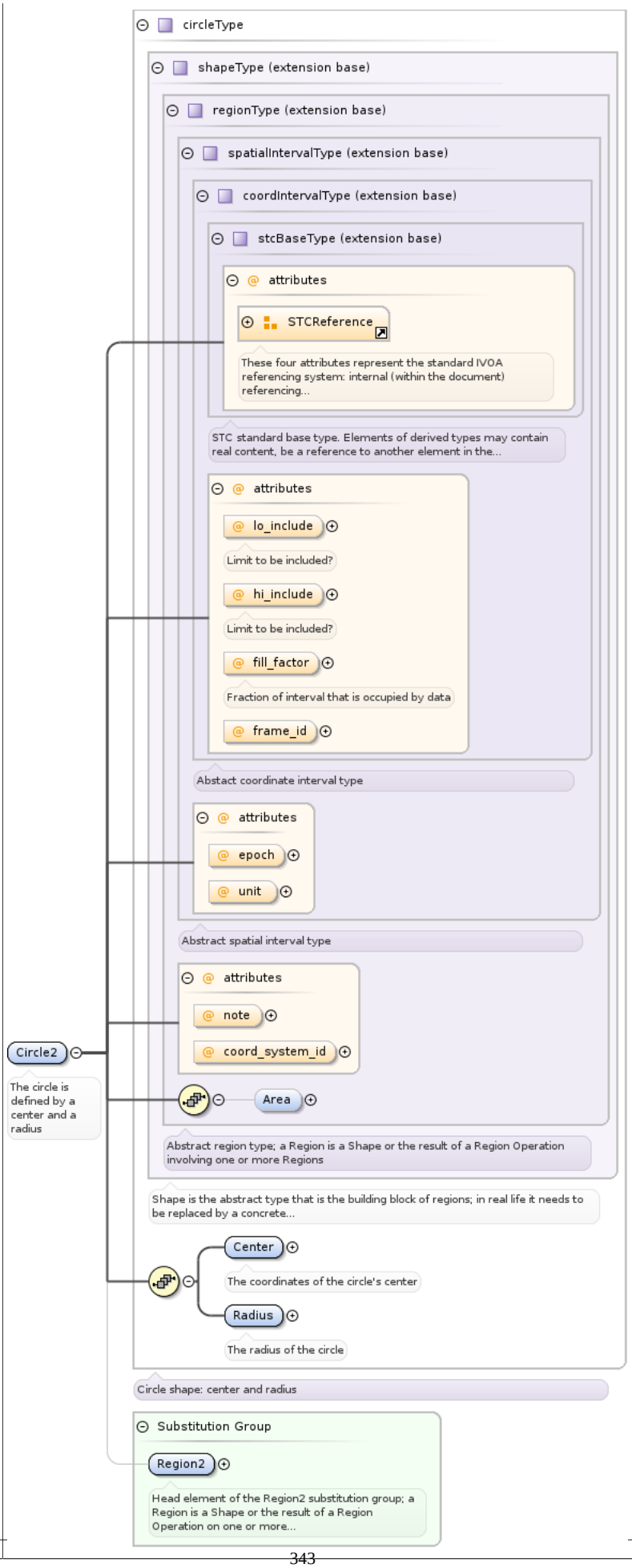
```
<xs:element name="AllSky2" type="allSkyType" substitutionGroup="Region2" nillable="true">
  <xs:annotation>
    <xs:documentation>AllSky is just a convenience, meaning no bounds</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element Circle2

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The circle is defined by a center and a radius |

Diagram


circleType
shapeType (extension base)
regionType (extension base)
spatialIntervalType (extension base)
coordIntervalType (extension base)
stcBaseType (extension base)
attributes
STCReference
These four attributes represent the standard IVOA referencing system: internal (within the document) referencing...
STC standard base type. Elements of derived types may contain real content, be a reference to another element in the...
attributes
lo_include
Limit to be included?
hi_include
Limit to be included?
fill_factor
Fraction of interval that is occupied by data
frame_id
Abstact coordinate interval type
attributes
epoch
unit
Abstract spatial interval type
attributes
note
coord_system_id
Area
Abstract region type; a Region is a Shape or the result of a Region Operation involving one or more Regions
Shape is the abstract type that is the building block of regions; in real life it needs to be replaced by a concrete...
Center
The coordinates of the circle's center
Radius
The radius of the circle
Circle2
The circle is defined by a center and a radius
Circle shape: center and radius
Substitution Group
Region2
Head element of the Region2 substitution group; a Region is a Shape or the result of a Region Operation on one or more...

| | |
|---|---|
| Type | circleType |
| Type hierarchy | • stcBaseType<br>  • coordIntervalType<br>  • spatialIntervalType<br>  • regionType<br>  • shapeType<br>  • circleType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • Region2 |
| Model | Area{0,1} , Center , Radius |
| Children | Area, Center, Radius |

Instance

```
<Circle2 coord_system_id="" epoch="" fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" unit="" note="" lo_include="true" xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">
  <Area linearAreaUnit="" validArea="">{0,1}</Area>
  <Center gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" unit="" note="">
Center>
  <Radius gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" ucd="" unit="" note="">
Radius>
</Circle2>
```

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | Fraction of interval that is occupied by data | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **note** | xs:string | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

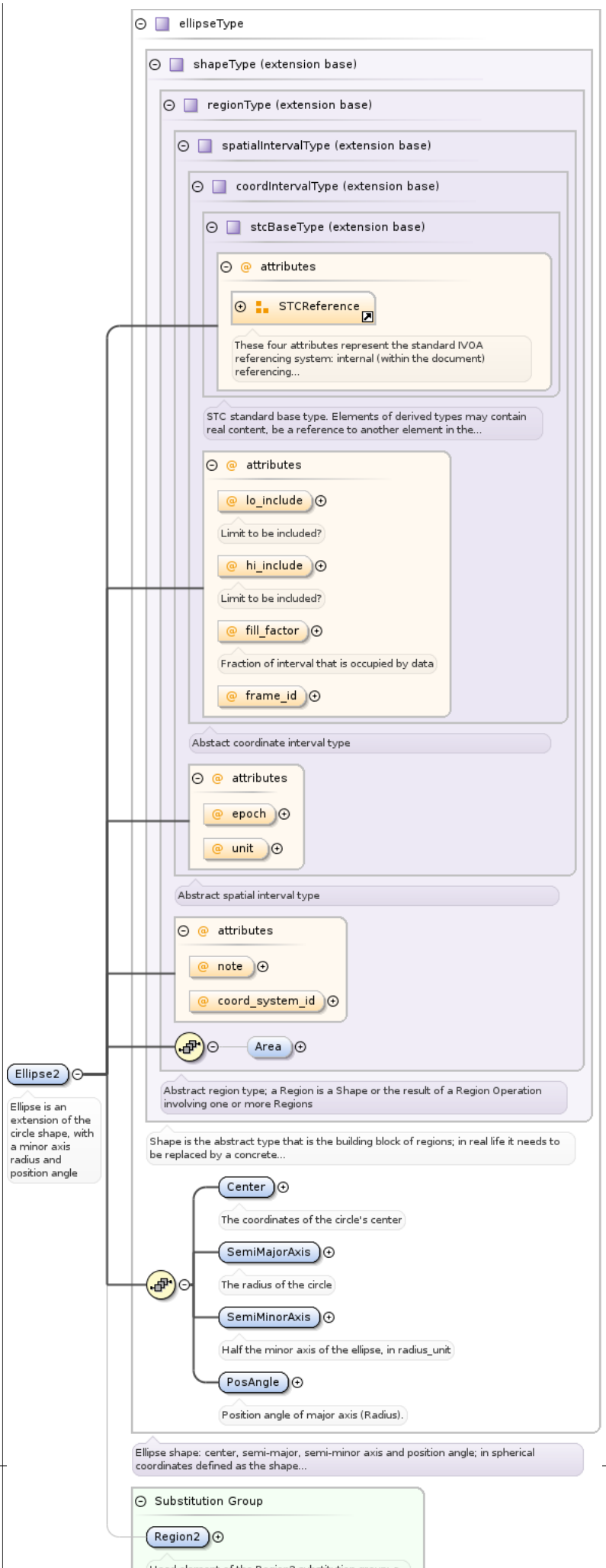
```
<xs:element name="Circle2" type="circleType" substitutionGroup="Region2" nillable="true">
  <xs:annotation>
    <xs:documentation>The circle is defined by a center and a radius</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element Ellipse2

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Ellipse is an extension of the circle shape, with a minor axis radius and position angle |

Diagram


ellipseType
shapeType (extension base)
regionType (extension base)
spatialIntervalType (extension base)
coordIntervalType (extension base)
stcBaseType (extension base)
attributes
STCReference
These four attributes represent the standard IVOA referencing system: internal (within the document) referencing...
STC standard base type. Elements of derived types may contain real content, be a reference to another element in the...
attributes
lo_include
Limit to be included?
hi_include
Limit to be included?
fill_factor
Fraction of interval that is occupied by data
frame_id
Abstact coordinate interval type
attributes
epoch
unit
Abstract spatial interval type
attributes
note
coord_system_id
Area
Abstract region type; a Region is a Shape or the result of a Region Operation involving one or more Regions
Shape is the abstract type that is the building block of regions; in real life it needs to be replaced by a concrete...
Center
The coordinates of the circle's center
SemiMajorAxis
The radius of the circle
SemiMinorAxis
Half the minor axis of the ellipse, in radius_unit
PosAngle
Position angle of major axis (Radius).
Ellipse2
Ellipse is an extension of the circle shape, with a minor axis radius and position angle
Ellipse shape: center, semi-major, semi-minor axis and position angle; in spherical coordinates defined as the shape...
Substitution Group
Region2

| | |
|---|---|
| Type | ellipseType |
| Type hierarchy | • stcBaseType<br>• coordIntervalType<br>• spatialIntervalType<br>• regionType<br>• shapeType<br>• ellipseType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • Region2 |
| Model | Area{0,1} , Center , SemiMajorAxis , SemiMinorAxis , PosAngle |
| Children | Area, Center, PosAngle, SemiMajorAxis, SemiMinorAxis |

Instance

```
<Ellipse2 coord_system_id="" epoch="" fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="
www.ivoa.net/xml/STC/stc-v1.30.xsd">
  <Area linearAreaUnit="" validArea="">{0,1}</Area>
  <Center gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" u
Center>
  <SemiMajorAxis gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos
SemiMajorAxis>
  <SemiMinorAxis gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos
SemiMinorAxis>
  <PosAngle xlink:href="" id="" ID_type="" idref="" IDREF_type="" reference="X" xlink:type="simple" ucd=
PosAngle>
</Ellipse2>
```

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | Fraction of interval that is occupied by data | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **note** | xs:string | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:element name="Ellipse2" type="ellipseType" substitutionGroup="Region2"
 nillable="true">
  <xs:annotation>
    <xs:documentation>Ellipse is an extension of the circle shape, with a minor axis
 radius and position angle</xs:documentation>
  </xs:annotation>
</xs:element>
```

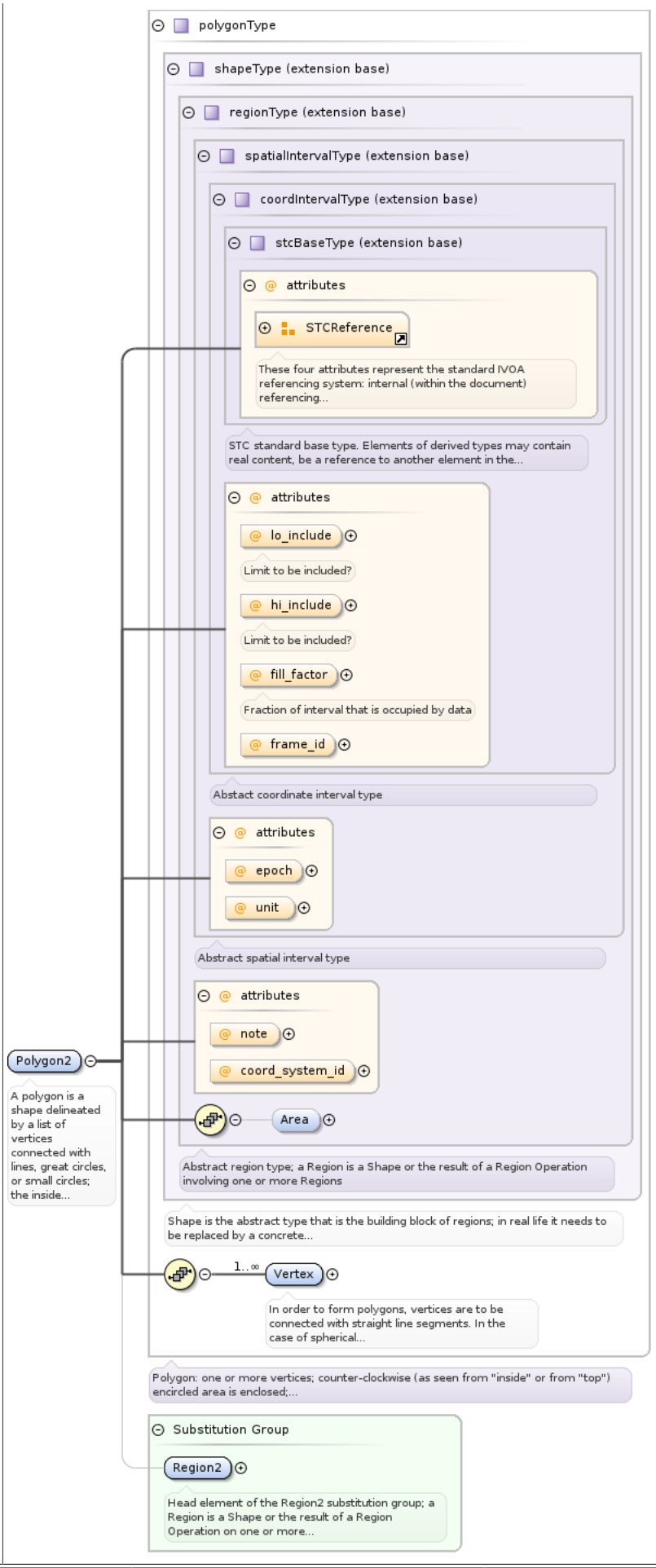
| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element Polygon2

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

| | |
|---|---|
| Annotations | A polygon is a shape delineated by a list of vertices connected with lines, great circles, or small circles; the inside of the polygon is circumscribed counter-clockwise by the list of vertices; the polygon may be concave but not self-intersecting; the last vertex in the list is the predecessor of the first. For celestial coordinates it is assumed that we are looking at the sphere from the inside, with Right Ascension increasing to the left. Sides should span less than 180 deg in each coordinate. |

Diagram


polygonType
shapeType (extension base)
regionType (extension base)
spatialIntervalType (extension base)
coordIntervalType (extension base)
stcBaseType (extension base)
attributes
STCReference
These four attributes represent the standard IVOA referencing system: internal (within the document) referencing...
STC standard base type. Elements of derived types may contain real content, be a reference to another element in the...
attributes
lo_include
Limit to be included?
hi_include
Limit to be included?
fill_factor
Fraction of interval that is occupied by data
frame_id
Abstact coordinate interval type
attributes
epoch
unit
Abstract spatial interval type
attributes
note
coord_system_id
Area
Abstract region type; a Region is a Shape or the result of a Region Operation involving one or more Regions
Shape is the abstract type that is the building block of regions; in real life it needs to be replaced by a concrete...
1..∞
Vertex
In order to form polygons, vertices are to be connected with straight line segments. In the case of spherical...
Polygon2
A polygon is a shape delineated by a list of vertices connected with lines, great circles, or small circles; the inside...
Polygon: one or more vertices; counter-clockwise (as seen from "inside" or from "top") encircled area is enclosed;...
Substitution Group
Region2
Head element of the Region2 substitution group; a Region is a Shape or the result of a Region Operation on one or more...

| | |
|---|---|
| Type | polygonType |
| Type hierarchy | • stcBaseType<br>  • coordIntervalType<br>  • spatialIntervalType<br>  • regionType<br>  • shapeType<br>  • polygonType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • Region2 |
| Model | Area{0,1} , Vertex+ |
| Children | Area, Vertex |
| Instance | `<Polygon2 coord_system_id="" epoch="" fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="`<br>`www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Area linearAreaUnit="" validArea="">{0,1}</Area>`<br>`  <Vertex>{1,unbounded}</Vertex>`<br>`</Polygon2>` |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | Fraction of interval that is occupied by data | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **note** | xs:string | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:element name="Polygon2" type="polygonType" substitutionGroup="Region2"
 nillable="true">
  <xs:annotation>
    <xs:documentation>A polygon is a shape delineated by a list of vertices connected
 with lines, great circles, or small circles; the inside of the polygon is circumscribed
 counter-clockwise by the list of vertices; the polygon may be concave but not self-
intersecting; the last vertex in the list is the predecessor of the first. For celestial
 coordinates it is assumed that we are looking at the sphere from the inside, with
 Right Ascension increasing to the left. Sides should span less than 180 deg in each
 coordinate.</xs:documentation>
  </xs:annotation>
</xs:element>
```

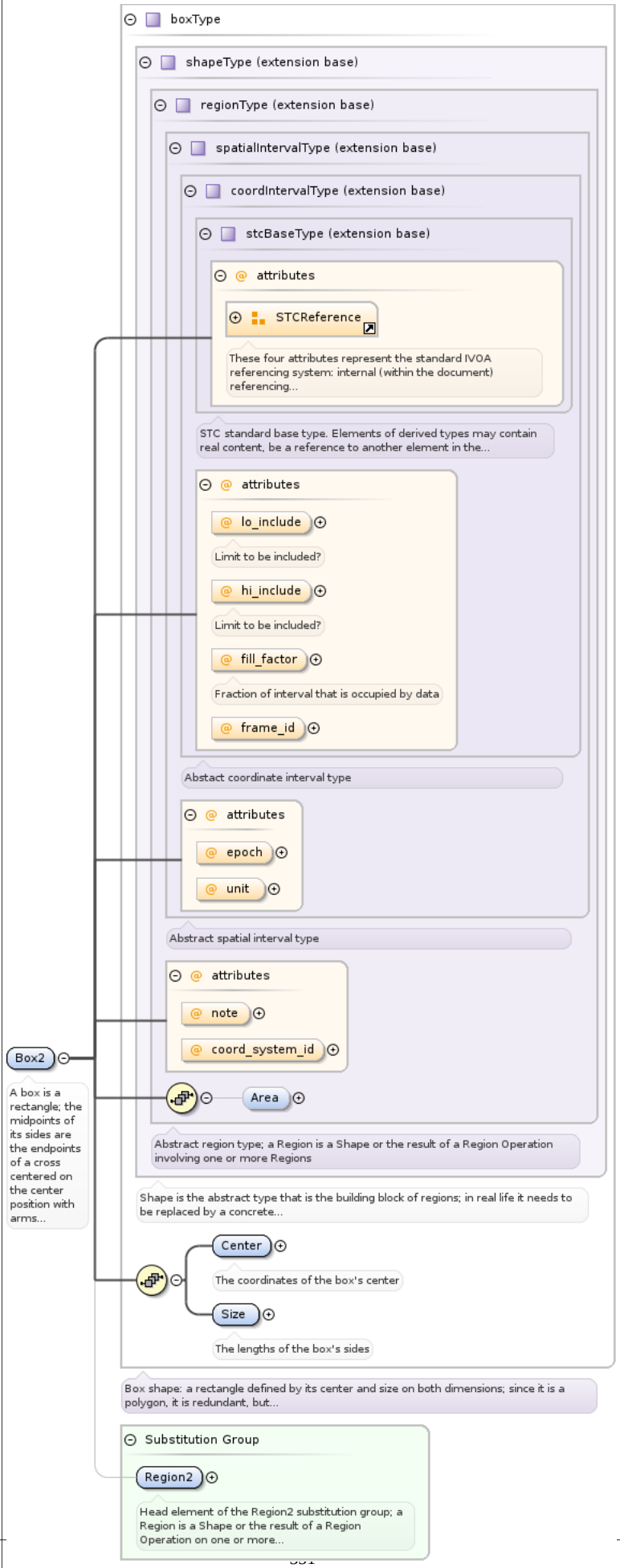
| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element Box2

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

| | |
|---|---|
| Annotations | A box is a rectangle; the midpoints of its sides are the endpoints of a cross centered on the center position with arms that extend half the size for each coordinate in both directions, and the sides are lines or great circles that intersect the cross at its end points at right angles; the arms of the cross are parallel to the coordinate axes at the center point. |

Diagram


boxType
shapeType (extension base)
regionType (extension base)
spatialIntervalType (extension base)
coordIntervalType (extension base)
stcBaseType (extension base)
attributes
STCReference
These four attributes represent the standard IVOA referencing system: internal (within the document) referencing...
STC standard base type. Elements of derived types may contain real content, be a reference to another element in the...
attributes
lo_include
Limit to be included?
hi_include
Limit to be included?
fill_factor
Fraction of interval that is occupied by data
frame_id
Abstact coordinate interval type
attributes
epoch
unit
Abstract spatial interval type
attributes
note
coord_system_id
Area
Abstract region type; a Region is a Shape or the result of a Region Operation involving one or more Regions
Shape is the abstract type that is the building block of regions; in real life it needs to be replaced by a concrete...
Box2
A box is a rectangle; the midpoints of its sides are the endpoints of a cross centered on the center position with arms...
Center
The coordinates of the box's center
Size
The lengths of the box's sides
Box shape: a rectangle defined by its center and size on both dimensions; since it is a polygon, it is redundant, but...
Substitution Group
Region2
Head element of the Region2 substitution group; a Region is a Shape or the result of a Region Operation on one or more...

| | |
|---|---|
| Type | boxType |
| Type hierarchy | • stcBaseType<br>  • coordIntervalType<br>  • spatialIntervalType<br>  • regionType<br>  • shapeType<br>  • boxType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • Region2 |
| Model | Area{0,1} , Center , Size |
| Children | Area, Center, Size |
| Instance | `<Box2 coord_system_id="" epoch="" fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="" ID`<br>`www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Area linearAreaUnit="" validArea="">{0,1}</Area>`<br>`  <Center gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" u`<br>`Center>`<br>`  <Size gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" uni`<br>`Size>`<br>`</Box2>` |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | Fraction of interval that is occupied by data | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **note** | xs:string | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:element name="Box2" type="boxType" substitutionGroup="Region2" nillable="true">
  <xs:annotation>
    <xs:documentation>A box is a rectangle; the midpoints of its sides are the endpoints
 of a cross centered on the center position with arms that extend half the size for each
 coordinate in both directions, and the sides are lines or great circles that intersect
 the cross at its end points at right angles; the arms of the cross are parallel to the
 coordinate axes at the center point.</xs:documentation>
  </xs:annotation>
</xs:element>
```

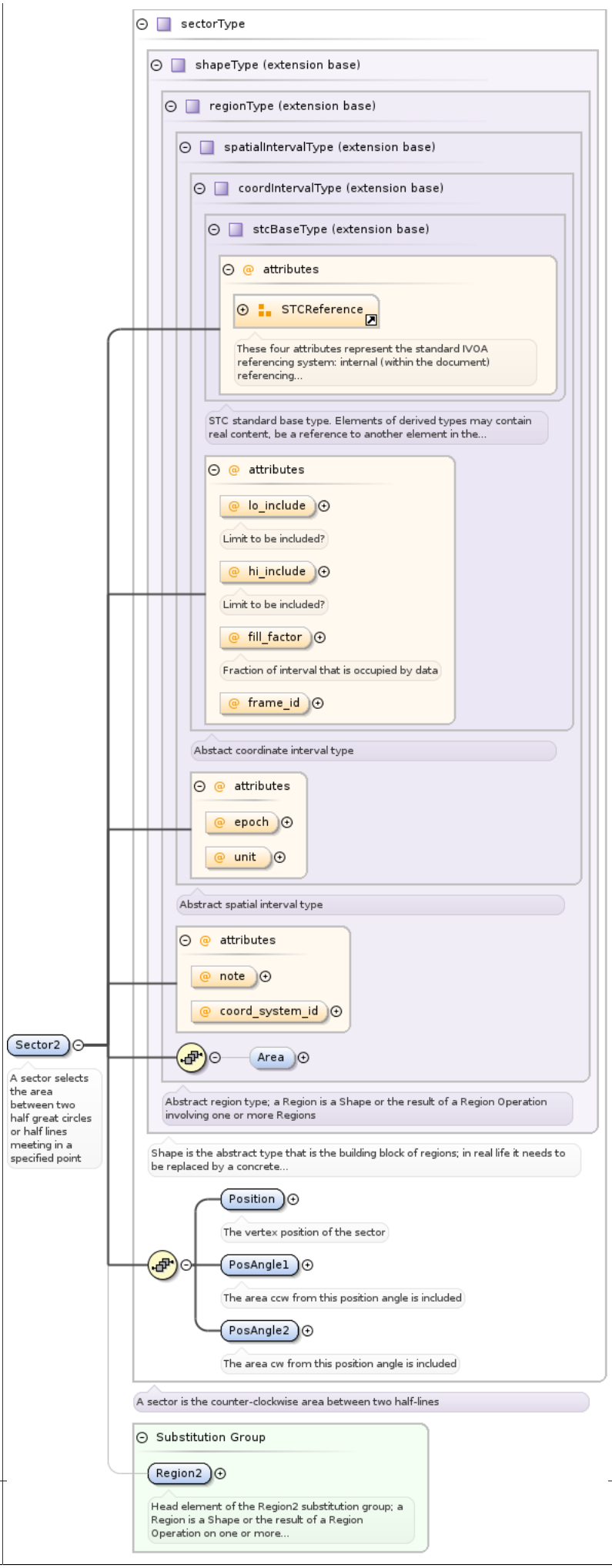
| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element Sector2

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

| | |
|---|---|
| Annotations | A sector selects the area between two half great circles or half lines meeting in a specified point |

Diagram


sectorType
shapeType (extension base)
regionType (extension base)
spatialIntervalType (extension base)
coordIntervalType (extension base)
stcBaseType (extension base)
attributes
STCReference
These four attributes represent the standard IVOA referencing system: internal (within the document) referencing...
STC standard base type. Elements of derived types may contain real content, be a reference to another element in the...
attributes
lo_include
Limit to be included?
hi_include
Limit to be included?
fill_factor
Fraction of interval that is occupied by data
frame_id
Abstact coordinate interval type
attributes
epoch
unit
Abstract spatial interval type
attributes
note
coord_system_id
Area
Abstract region type; a Region is a Shape or the result of a Region Operation involving one or more Regions
Shape is the abstract type that is the building block of regions; in real life it needs to be replaced by a concrete...
Position
The vertex position of the sector
PosAngle1
The area ccw from this position angle is included
PosAngle2
The area cw from this position angle is included
A sector is the counter-clockwise area between two half-lines
Substitution Group
Region2
Head element of the Region2 substitution group; a Region is a Shape or the result of a Region Operation on one or more...
Sector2
A sector selects the area between two half great circles or half lines meeting in a specified point

| | |
|---|---|
| Type | sectorType |
| Type hierarchy | • stcBaseType<br>• coordIntervalType<br>• spatialIntervalType<br>• regionType<br>• shapeType<br>• sectorType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • Region2 |
| Model | Area{0,1} , Position , PosAngle1 , PosAngle2 |
| Children | Area, PosAngle1, PosAngle2, Position |

Instance

```
<Sector2 coord_system_id="" epoch="" fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" note="" unit="" lo_include="true">
  <Area linearAreaUnit="" validArea="">{0,1}</Area>
  <Position gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" note="" unit="" />
  <PosAngle1 xlink:href="" id="" ID_type="" idref="" IDREF_type="" reference="X" xlink:type="simple" ucd="" note="" unit="" />
  <PosAngle2 xlink:href="" id="" ID_type="" idref="" IDREF_type="" reference="X" xlink:type="simple" ucd="" note="" unit="" />
</Sector2>
```

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | Fraction of interval that is occupied by data | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **note** | xs:string | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:element name="Sector2" type="sectorType" substitutionGroup="Region2" nillable="true">
  <xs:annotation>
    <xs:documentation>A sector selects the area between two half great circles or half
 lines meeting in a specified point</xs:documentation>
  </xs:annotation>
</xs:element>
```

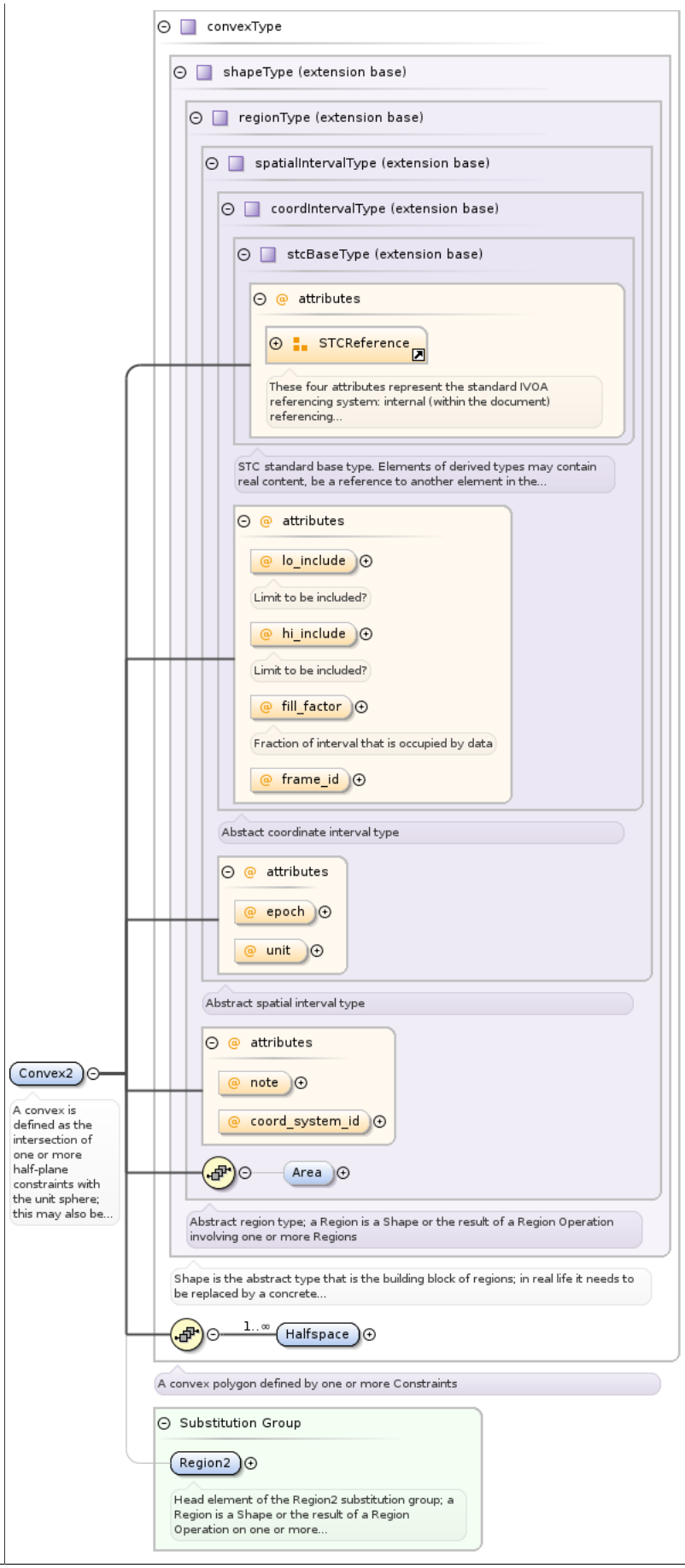
| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element Convex2

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

| | |
|---|---|
| Annotations | A convex is defined as the intersection of one or more half-plane constraints with the unit sphere; this may also be described as the union of one or more convex polygons bounded by one or more constraint planes |

Diagram


convexType
shapeType (extension base)
regionType (extension base)
spatialIntervalType (extension base)
coordIntervalType (extension base)
stcBaseType (extension base)
attributes
STCReference
These four attributes represent the standard IVOA referencing system: internal (within the document) referencing...
STC standard base type. Elements of derived types may contain real content, be a reference to another element in the...
attributes
lo_include
Limit to be included?
hi_include
Limit to be included?
fill_factor
Fraction of interval that is occupied by data
frame_id
Abstact coordinate interval type
attributes
epoch
unit
Abstract spatial interval type
attributes
note
coord_system_id
Area
Abstract region type; a Region is a Shape or the result of a Region Operation involving one or more Regions
Shape is the abstract type that is the building block of regions; in real life it needs to be replaced by a concrete...
1..∞
Halfspace
Convex2
A convex is defined as the intersection of one or more half-plane constraints with the unit sphere; this may also be...
A convex polygon defined by one or more Constraints
Substitution Group
Region2
Head element of the Region2 substitution group; a Region is a Shape or the result of a Region Operation on one or more...

| | |
|---|---|
| Type | convexType |
| Type hierarchy | • stcBaseType<br>  • coordIntervalType<br>  • spatialIntervalType<br>  • regionType<br>  • shapeType<br>  • convexType |
| Properties | content: `complex`<br>nillable: `true` |
| `Substitution Group Affiliation` | • Region2 |
| Model | Area{0,1} , Halfspace+ |
| Children | Area, Halfspace |
| `Instance` | `<Convex2 coord_system_id="" epoch="" fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="" www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Area linearAreaUnit="" validArea="">{0,1}</Area>`<br>`  <Halfspace>{1,unbounded}</Halfspace>`<br>`</Convex2>` |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | `Fraction of interval that is occupied by data` | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **note** | xs:string | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

`Source`

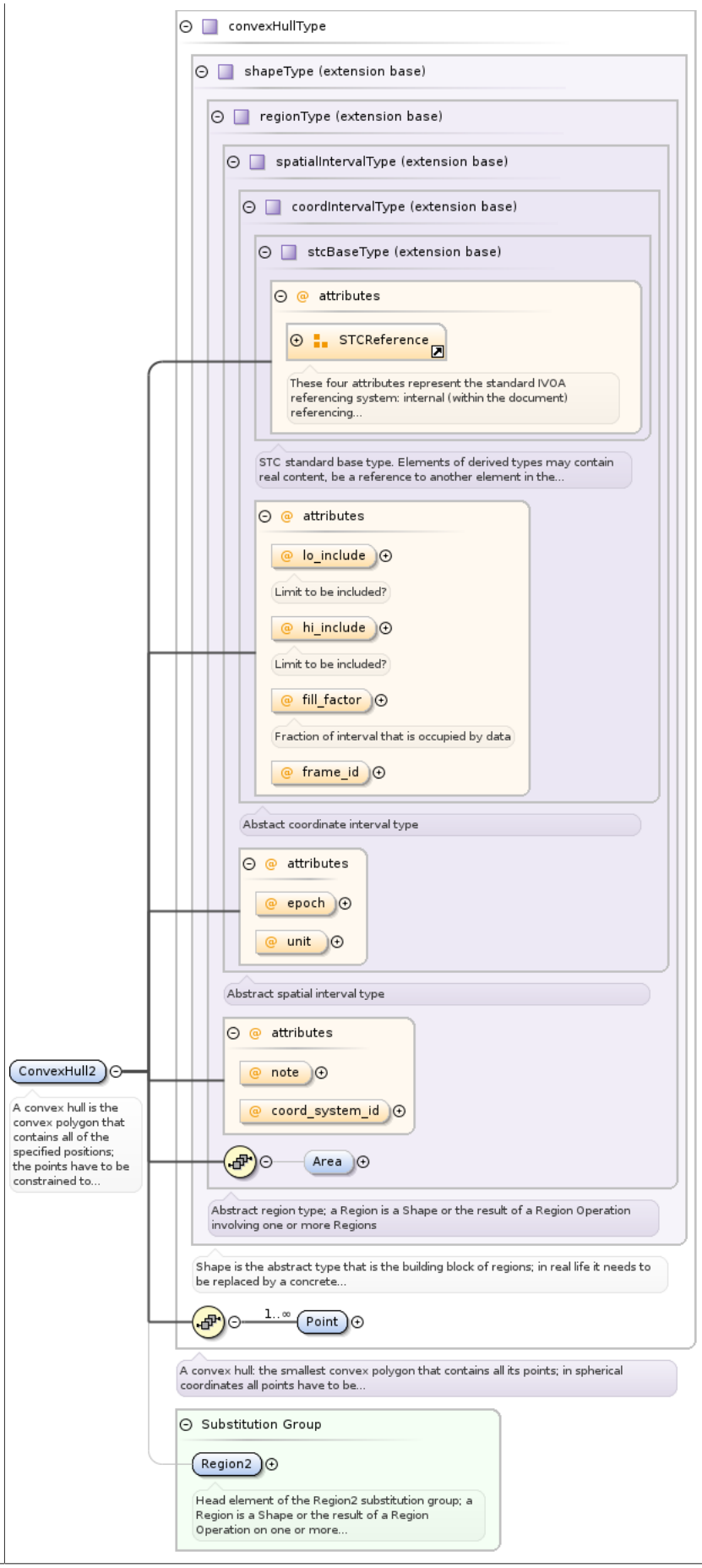
```
<xs:element name="Convex2" type="convexType" substitutionGroup="Region2" nillable="true">
  <xs:annotation>
    <xs:documentation>A convex is defined as the intersection of one or more half-plane
 constraints with the unit sphere; this may also be described as the union of one or more
 convex polygons bounded by one or more constraint planes</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `ConvexHull2`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `A convex hull is the convex polygon that contains all of the specified positions; the points have to be constrained to lie in one hemisphere` |

Diagram


convexHullType
shapeType (extension base)
regionType (extension base)
spatialIntervalType (extension base)
coordIntervalType (extension base)
stcBaseType (extension base)
attributes
STCReference
These four attributes represent the standard IVOA referencing system: internal (within the document) referencing...
STC standard base type. Elements of derived types may contain real content, be a reference to another element in the...
attributes
lo_include
Limit to be included?
hi_include
Limit to be included?
fill_factor
Fraction of interval that is occupied by data
frame_id
Abstact coordinate interval type
attributes
epoch
unit
Abstract spatial interval type
attributes
note
coord_system_id
Area
Abstract region type; a Region is a Shape or the result of a Region Operation involving one or more Regions
Shape is the abstract type that is the building block of regions; in real life it needs to be replaced by a concrete...
1..∞
Point
A convex hull: the smallest convex polygon that contains all its points; in spherical coordinates all points have to be...
Substitution Group
Region2
Head element of the Region2 substitution group; a Region is a Shape or the result of a Region Operation on one or more...
ConvexHull2
A convex hull is the convex polygon that contains all of the specified positions; the points have to be constrained to...

| | |
|---|---|
| Type | convexHullType |
| Type hierarchy | • stcBaseType<br>  • coordIntervalType<br>  • spatialIntervalType<br>  • regionType<br>  • shapeType<br>  • convexHullType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • Region2 |
| Model | Area{0,1} , Point+ |
| Children | Area, Point |
| Instance | <ConvexHull2 coord_system_id="" epoch="" fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" i<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <Area linearAreaUnit="" validArea="">{0,1}</Area><br>  <Point gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" un<br>Point><br></ConvexHull2> |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | Fraction of interval that is occupied by data | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **note** | xs:string | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

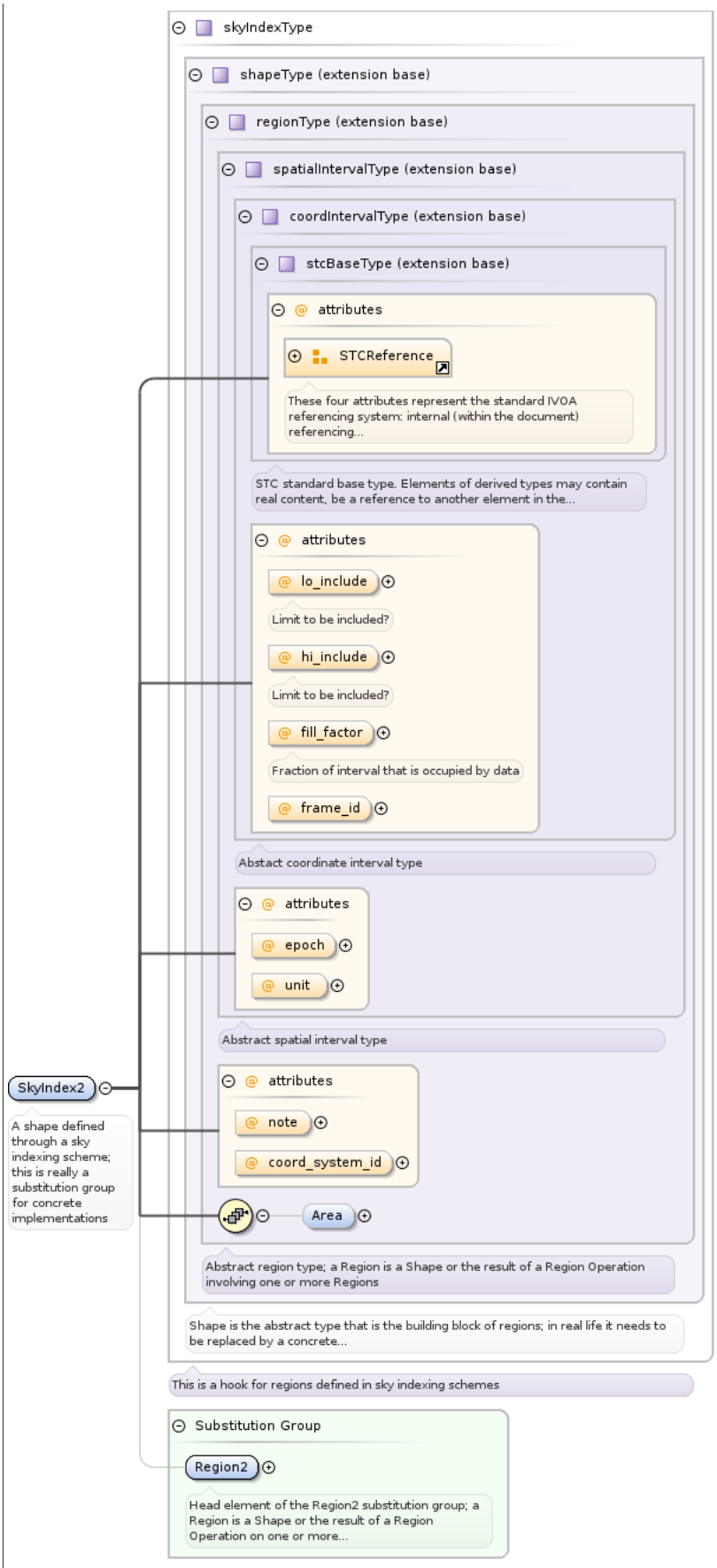
Source

```
<xs:element name="ConvexHull2" type="convexHullType" substitutionGroup="Region2"
 nillable="true">
  <xs:annotation>
    <xs:documentation>A convex hull is the convex polygon that contains all of the
 specified positions; the points have to be constrained to lie in one hemisphere</
xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element SkyIndex2

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | A shape defined through a sky indexing scheme; this is really a substitution group for concrete implementations |

| | |
|---|---|
| Diagram |  |
| Type | skyIndexType |
| Type hierarchy | • stcBaseType |

| | |
|---|---|
| | • coordIntervalType<br>• spatialIntervalType<br>• regionType<br>• shapeType<br>• skyIndexType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • Region2 |
| Model | Area{0,1} |
| Children | Area |
| Instance | `<SkyIndex2 coord_system_id="" epoch="" fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id=`<br>`www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Area linearAreaUnit="" validArea="">{0,1}</Area>`<br>`</SkyIndex2>` |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | Fraction of interval that is occupied by data | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **note** | xs:string | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

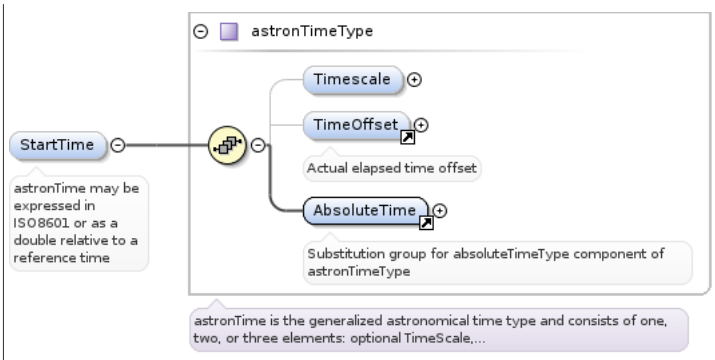
Source

```
<xs:element name="SkyIndex2" type="skyIndexType" substitutionGroup="Region2"
 nillable="true">
  <xs:annotation>
    <xs:documentation>A shape defined through a sky indexing scheme; this is really a
 substitution group for concrete implementations</xs:documentation>
  </xs:annotation>
</xs:element>
```

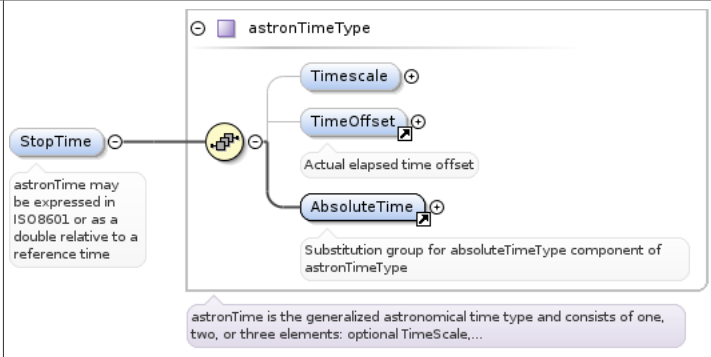
| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element timeIntervalType / StartTime

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | astronTime may be expressed in ISO8601 or as a double relative to a reference time |

| | |
|---|---|
| Diagram |  |
| Type | astronTimeType |
| Properties | content: complex<br>minOccurs: 0<br>nillable: true |
| Model | Timescale{0,1} , TimeOffset{0,1} , AbsoluteTime |
| Children | AbsoluteTime, TimeOffset, Timescale |
| Instance | `<StartTime xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Timescale>{0,1}</Timescale>`<br>`  <TimeOffset xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" unit="s">`<br>`TimeOffset>`<br>`  <AbsoluteTime>{1,1}</AbsoluteTime>`<br>`</StartTime>` |
| Source | `<xs:element name="StartTime" type="astronTimeType" nillable="true" minOccurs="0">`<br>`  <xs:annotation>`<br>`  <xs:documentation>astronTime may be expressed in ISO8601 or as a double relative to a reference time</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

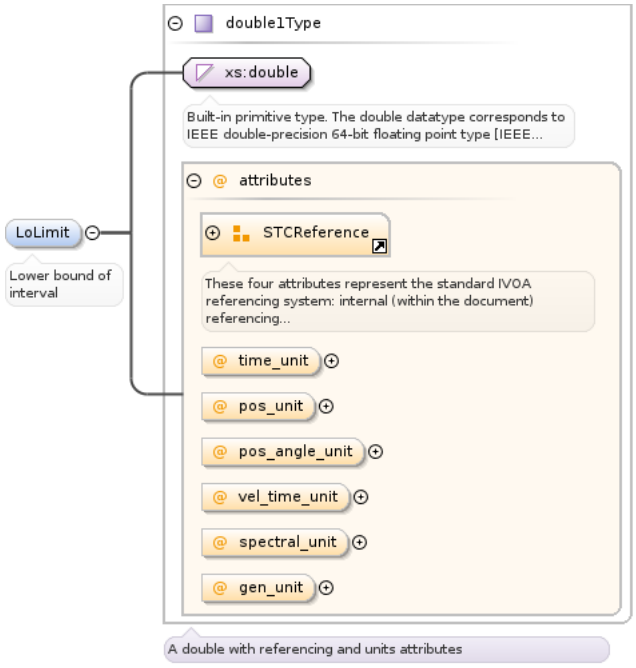
## Element timeIntervalType / StopTime

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | astronTime may be expressed in ISO8601 or as a double relative to a reference time |
| Diagram |  |
| Type | astronTimeType |
| Properties | content: complex<br>minOccurs: 0<br>nillable: true |
| Model | Timescale{0,1} , TimeOffset{0,1} , AbsoluteTime |
| Children | AbsoluteTime, TimeOffset, Timescale |
| Instance | `<StopTime xmlns="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <Timescale>{0,1}</Timescale>`<br>`  <TimeOffset xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" unit="s">`<br>`TimeOffset>`<br>`  <AbsoluteTime>{1,1}</AbsoluteTime>`<br>`</StopTime>` |
| Source | `<xs:element name="StopTime" type="astronTimeType" nillable="true" minOccurs="0">` |

```
  <xs:annotation>
    <xs:documentation>astronTime may be expressed in ISO8601 or as a double relative to a
 reference time</xs:documentation>
  </xs:annotation>
</xs:element>
```

| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
|---|---|

## Element `coordScalarIntervalType / LoLimit`

| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
|---|---|
| Annotations | `Lower bound of interval` |
| Diagram |  |



| Type | double1Type |
|---|---|

Properties

| content: | `complex` |
|---|---|
| minOccurs: | `0` |
| nillable: | `true` |

Attributes

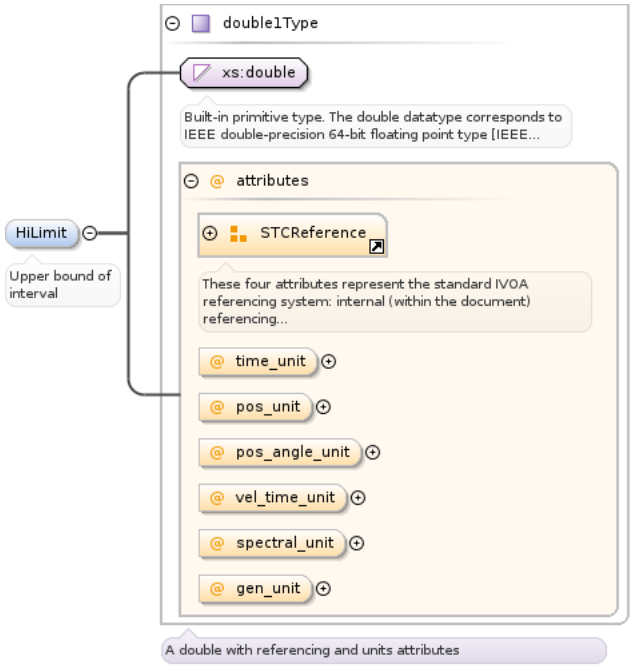
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **pos_angle_unit** | angleUnitType | | | optional |
| **pos_unit** | posUnitType | | | optional |
| **spectral_unit** | spectralUnitType | | | optional |
| **time_unit** | timeUnitType | | | optional |
| **ucd** | xs:string | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:element name="LoLimit" type="double1Type" nillable="true" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Lower bound of interval</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `coordScalarIntervalType / HiLimit`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `Upper bound of interval` |
| Diagram |  |
| Type | double1Type |
| Properties | content: `complex`<br>minOccurs: `0`<br>nillable: `true` |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **pos_angle_unit** | angleUnitType | | | optional |
| **pos_unit** | posUnitType | | | optional |
| **spectral_unit** | spectralUnitType | | | optional |
| **time_unit** | timeUnitType | | | optional |
| **ucd** | xs:string | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

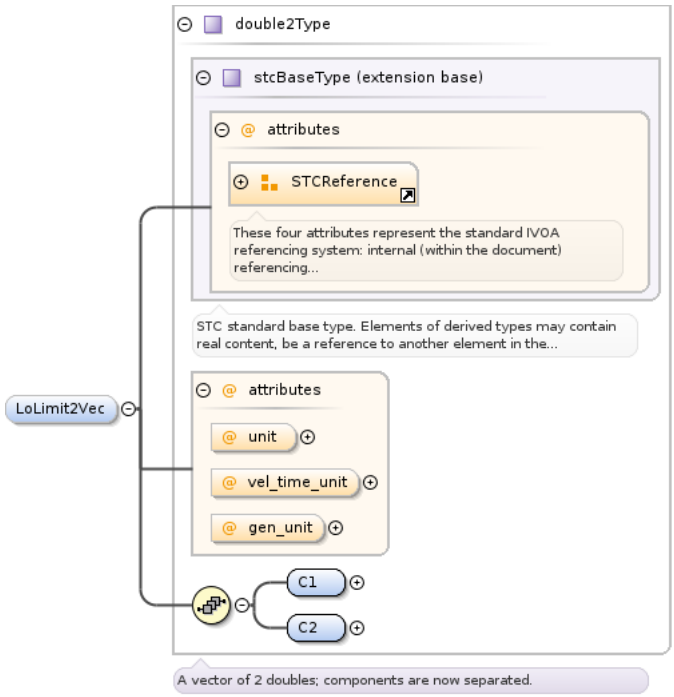
Source

```
<xs:element name="HiLimit" type="double1Type" nillable="true" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Upper bound of interval</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `coord2VecIntervalType / LoLimit2Vec`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

| | |
|---|---|
| Diagram |  |
| Type | double2Type |
| Type hierarchy | • stcBaseType<br>  • double2Type |
| Properties | content: complex<br>minOccurs: 0<br>nillable: true |
| Model | C1 , C2 |
| Children | C1, C2 |
| Instance | <LoLimit2Vec gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <C1 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C1><br>  <C2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C2><br></LoLimit2Vec> |

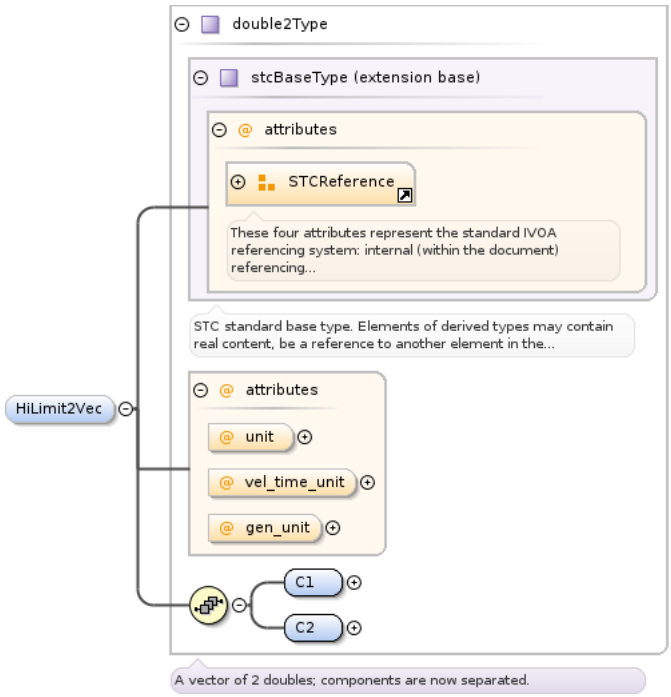
Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

| | |
|---|---|
| Source | <xs:element name="LoLimit2Vec" type="double2Type" nillable="true" minOccurs="0"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element coord2VecIntervalType / HiLimit2Vec

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

| | |
|---|---|
| Diagram |  |
| Type | double2Type |
| Type hierarchy | • stcBaseType<br>  • double2Type |
| Properties | content: complex<br>minOccurs: 0<br>nillable: true |
| Model | C1 , C2 |
| Children | C1, C2 |
| Instance | <HiLimit2Vec gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <C1 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C1><br>  <C2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C2><br></HiLimit2Vec> |

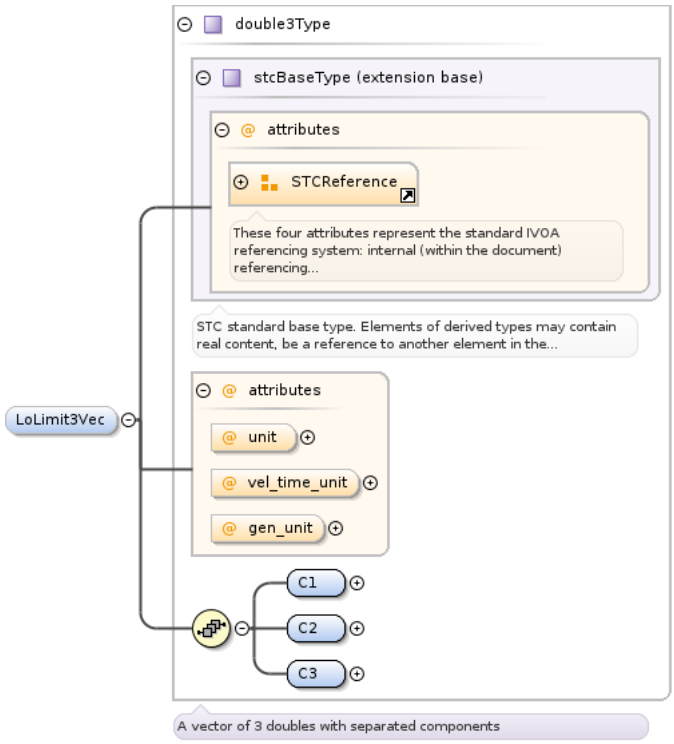
Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

| | |
|---|---|
| Source | <xs:element name="HiLimit2Vec" type="double2Type" nillable="true" minOccurs="0"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element coord3VecIntervalType / LoLimit3Vec

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

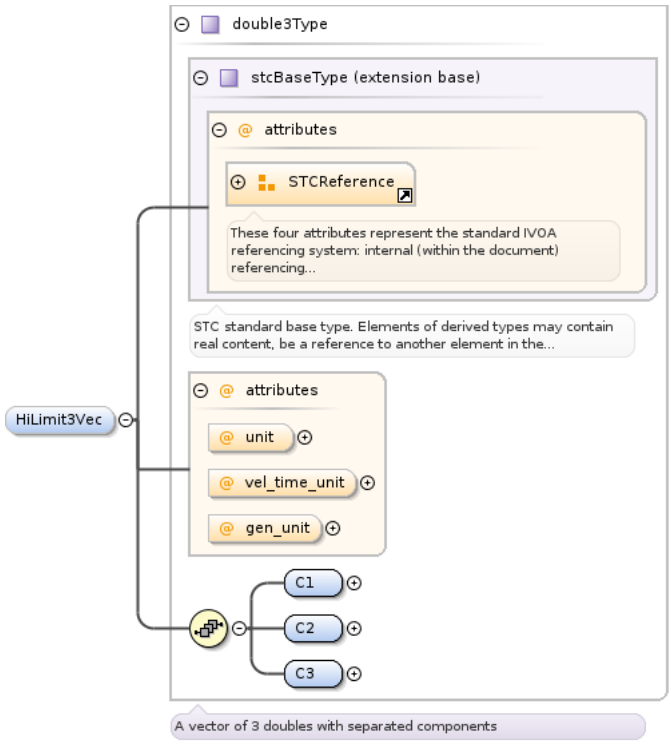
| | |
|---|---|
| Diagram |  |
| Type | double3Type |
| Type hierarchy | • stcBaseType<br>  • double3Type |
| Properties | content: complex<br>minOccurs: 0<br>nillable: true |
| Model | C1 , C2 , C3 |
| Children | C1, C2, C3 |
| Instance | <LoLimit3Vec gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <C1 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C1><br>  <C2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C2><br>  <C3 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C3><br></LoLimit3Vec> |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

| | |
|---|---|
| Source | <xs:element name="LoLimit3Vec" type="double3Type" nillable="true" minOccurs="0"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `coord3VecIntervalType / HiLimit3Vec`

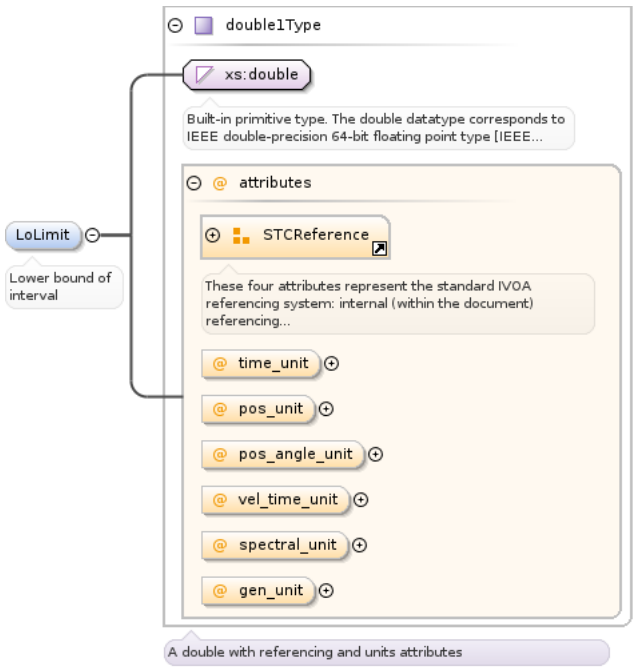
| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Diagram |  |
| Type | double3Type |
| Type hierarchy | • stcBaseType<br>  • double3Type |
| Properties | content: `complex`<br>minOccurs: `0`<br>nillable: `true` |
| Model | C1 , C2 , C3 |
| Children | C1, C2, C3 |
| `Instance` | `<HiLimit3Vec gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <C1 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp C1>`<br>`  <C2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp C2>`<br>`  <C3 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp C3>`<br>`</HiLimit3Vec>` |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

| | |
|---|---|
| Source | `<xs:element name="HiLimit3Vec" type="double3Type" nillable="true" minOccurs="0"/>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element uCoordScalarIntervalType / LoLimit

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Lower bound of interval |
| Diagram |  |



| | |
|---|---|
| Type | double1Type |
| Properties | content: complex<br>minOccurs: 0<br>nillable: true |

Attributes

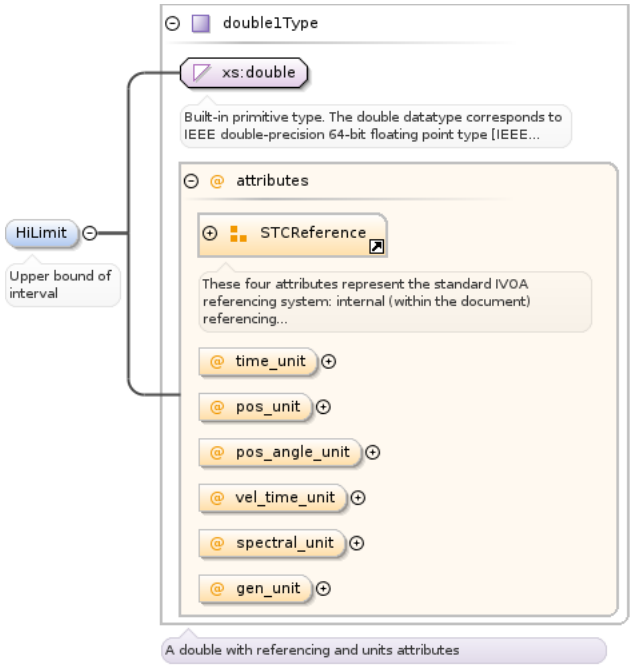
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **pos_angle_unit** | angleUnitType | | | optional |
| **pos_unit** | posUnitType | | | optional |
| **spectral_unit** | spectralUnitType | | | optional |
| **time_unit** | timeUnitType | | | optional |
| **ucd** | xs:string | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:element name="LoLimit" type="double1Type" nillable="true" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Lower bound of interval</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element uCoordScalarIntervalType / HiLimit

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Upper bound of interval |
| Diagram |  |
| Type | double1Type |
| Properties | content: complex<br>minOccurs: 0<br>nillable: true |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **pos_angle_unit** | angleUnitType | | | optional |
| **pos_unit** | posUnitType | | | optional |
| **spectral_unit** | spectralUnitType | | | optional |
| **time_unit** | timeUnitType | | | optional |
| **ucd** | xs:string | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

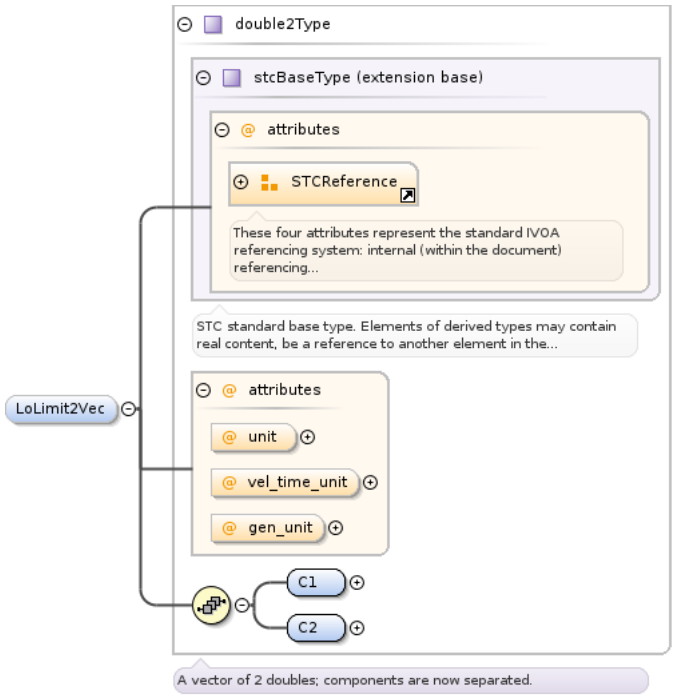
Source

```
<xs:element name="HiLimit" type="double1Type" nillable="true" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Upper bound of interval</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element uCoord2VecIntervalType / LoLimit2Vec

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

| | |
|---|---|
| Diagram |  |
| Type | double2Type |
| Type hierarchy | • stcBaseType<br>  • double2Type |
| Properties | content: complex<br>minOccurs: 0<br>nillable: true |
| Model | C1 , C2 |
| Children | C1, C2 |
| Instance | <LoLimit2Vec gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <C1 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C1><br>  <C2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C2><br></LoLimit2Vec> |

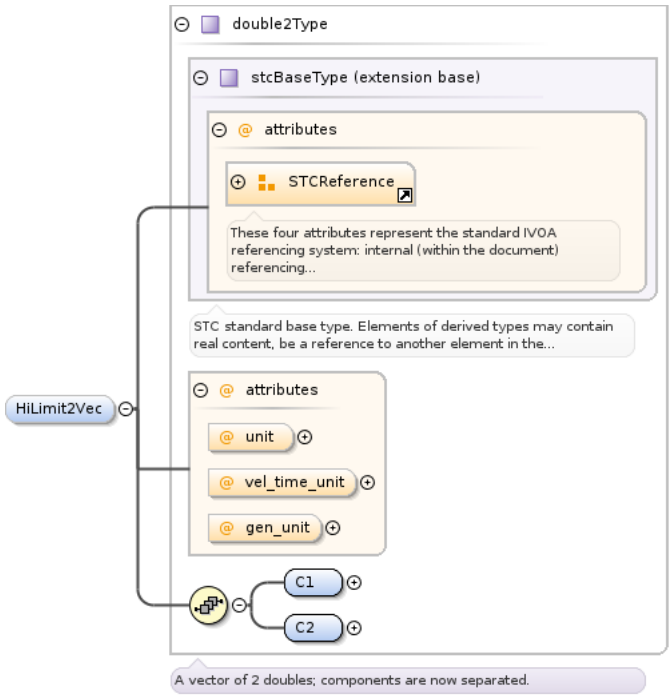
Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

| | |
|---|---|
| Source | <xs:element name="LoLimit2Vec" type="double2Type" nillable="true" minOccurs="0"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element uCoord2VecIntervalType / HiLimit2Vec

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

| | |
|---|---|
| Diagram |  |
| Type | double2Type |
| Type hierarchy | • stcBaseType<br>  • double2Type |
| Properties | content: complex<br>minOccurs: 0<br>nillable: true |
| Model | C1 , C2 |
| Children | C1, C2 |
| Instance | <HiLimit2Vec gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <C1 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C1><br>  <C2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C2><br></HiLimit2Vec> |

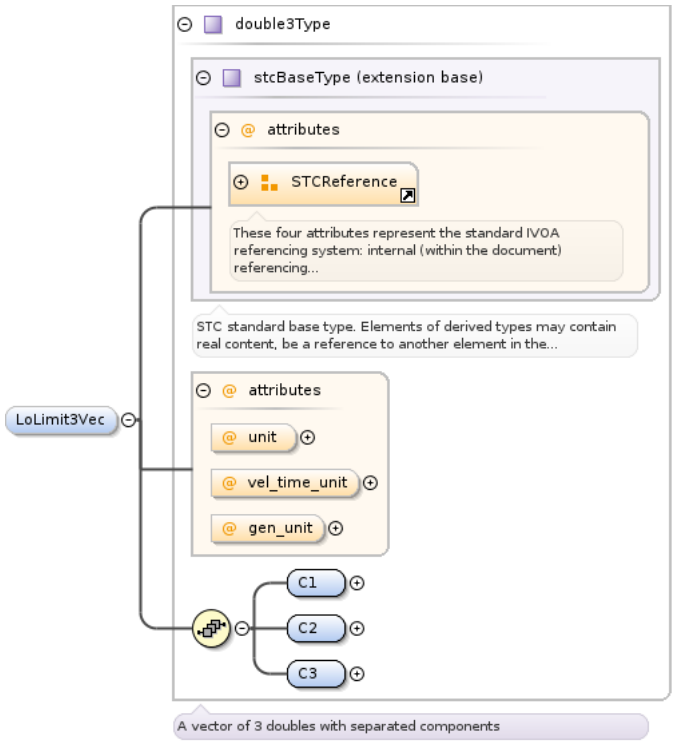
Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

| | |
|---|---|
| Source | <xs:element name="HiLimit2Vec" type="double2Type" nillable="true" minOccurs="0"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element uCoord3VecIntervalType / LoLimit3Vec

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

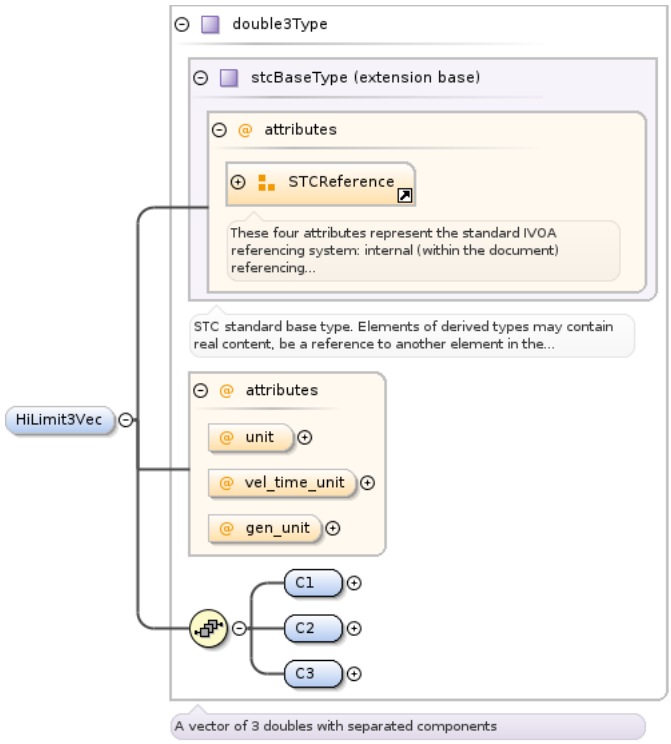
| | |
|---|---|
| Diagram |  |
| Type | double3Type |
| Type hierarchy | • stcBaseType<br>  • double3Type |
| Properties | content: complex<br>minOccurs: 0<br>nillable: true |
| Model | C1 , C2 , C3 |
| Children | C1, C2, C3 |
| Instance | <LoLimit3Vec gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <C1 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C1><br>  <C2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C2><br>  <C3 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C3><br></LoLimit3Vec> |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

| | |
|---|---|
| Source | <xs:element name="LoLimit3Vec" type="double3Type" nillable="true" minOccurs="0"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element uCoord3VecIntervalType / HiLimit3Vec

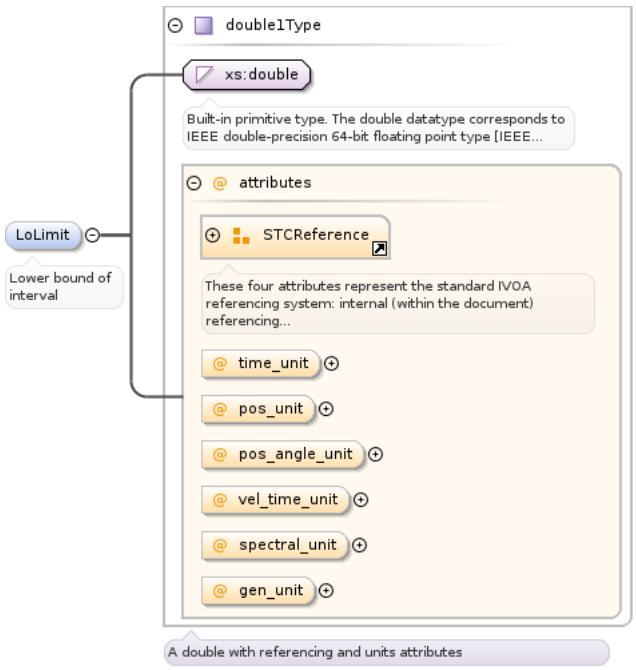
| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Diagram |  |
| Type | double3Type |
| Type hierarchy | • stcBaseType<br>  • double3Type |
| Properties | content: complex<br>minOccurs: 0<br>nillable: true |
| Model | C1 , C2 , C3 |
| Children | C1, C2, C3 |
| Instance | <HiLimit3Vec gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <C1 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C1><br>  <C2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C2><br>  <C3 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C3><br></HiLimit3Vec> |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

| | |
|---|---|
| Source | `<xs:element name="HiLimit3Vec" type="double3Type" nillable="true" minOccurs="0"/>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element posScalarIntervalType / LoLimit

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Lower bound of interval |
| Diagram |  |
| Type | double1Type |

**Properties**

| | |
|---|---|
| content: | complex |
| minOccurs: | 0 |
| nillable: | true |

**Attributes**

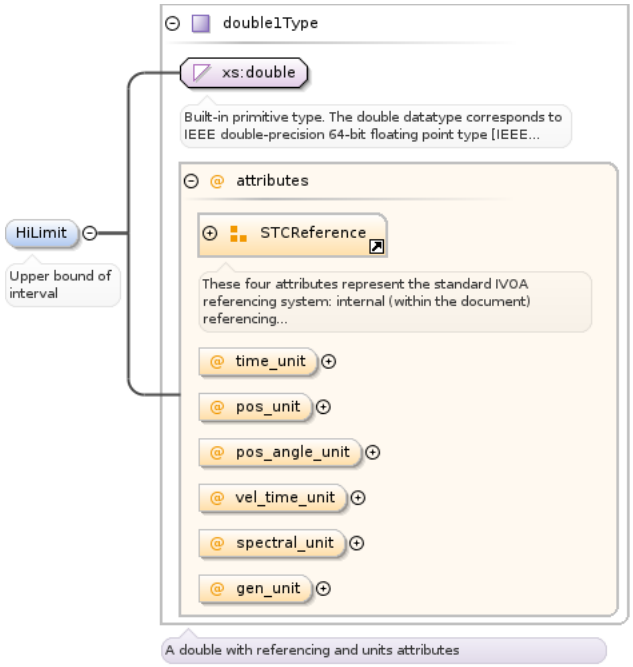
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **pos_angle_unit** | angleUnitType | | | optional |
| **pos_unit** | posUnitType | | | optional |
| **spectral_unit** | spectralUnitType | | | optional |
| **time_unit** | timeUnitType | | | optional |
| **ucd** | xs:string | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

**Source**

```
<xs:element name="LoLimit" type="double1Type" nillable="true" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Lower bound of interval</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element posScalarIntervalType / HiLimit

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Upper bound of interval |
| Diagram |  |
| Type | double1Type |
| Properties | content: complex<br>minOccurs: 0<br>nillable: true |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **pos_angle_unit** | angleUnitType | | | optional |
| **pos_unit** | posUnitType | | | optional |
| **spectral_unit** | spectralUnitType | | | optional |
| **time_unit** | timeUnitType | | | optional |
| **ucd** | xs:string | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

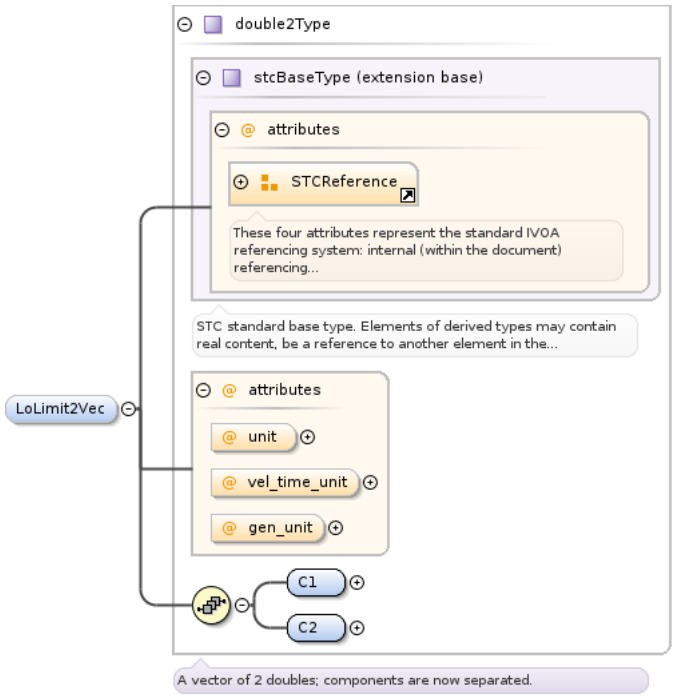
Source

```
<xs:element name="HiLimit" type="double1Type" nillable="true" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Upper bound of interval</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element pos2VecIntervalType / LoLimit2Vec

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

| | |
|---|---|
| Diagram |  |
| Type | double2Type |
| Type hierarchy | • stcBaseType<br>  • double2Type |
| Properties | content: complex<br>minOccurs: 0<br>nillable: true |
| Model | C1 , C2 |
| Children | C1, C2 |
| Instance | <LoLimit2Vec gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <C1 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C1><br>  <C2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C2><br></LoLimit2Vec> |

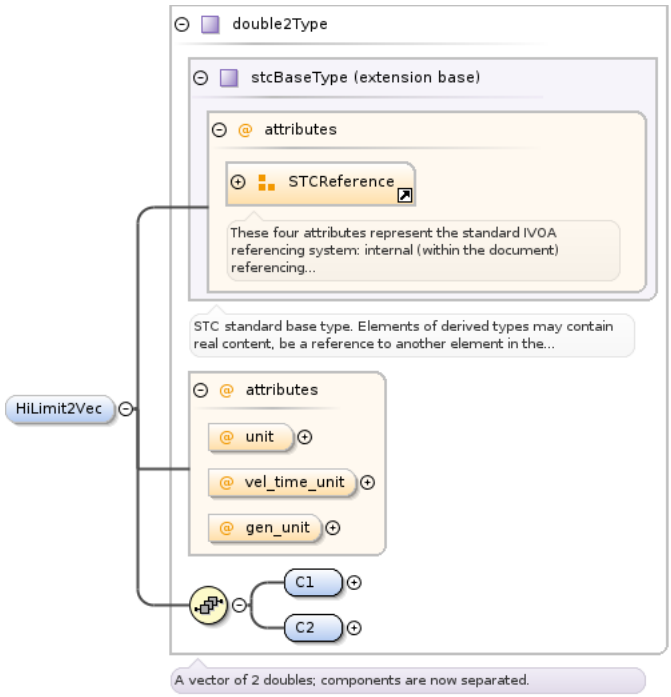
Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

| | |
|---|---|
| Source | <xs:element name="LoLimit2Vec" type="double2Type" nillable="true" minOccurs="0"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element pos2VecIntervalType / HiLimit2Vec

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

| | |
|---|---|
| Diagram |  |
| Type | double2Type |
| Type hierarchy | • stcBaseType<br>  • double2Type |
| Properties | content: complex<br>minOccurs: 0<br>nillable: true |
| Model | C1 , C2 |
| Children | C1, C2 |
| Instance | <HiLimit2Vec gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <C1 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C1><br>  <C2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C2><br></HiLimit2Vec> |

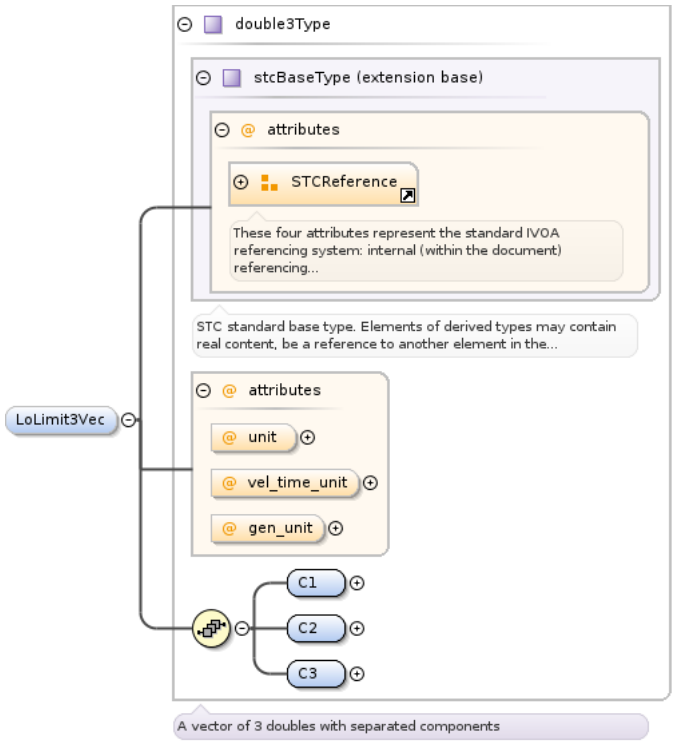
Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

| | |
|---|---|
| Source | <xs:element name="HiLimit2Vec" type="double2Type" nillable="true" minOccurs="0"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element pos3VecIntervalType / LoLimit3Vec

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

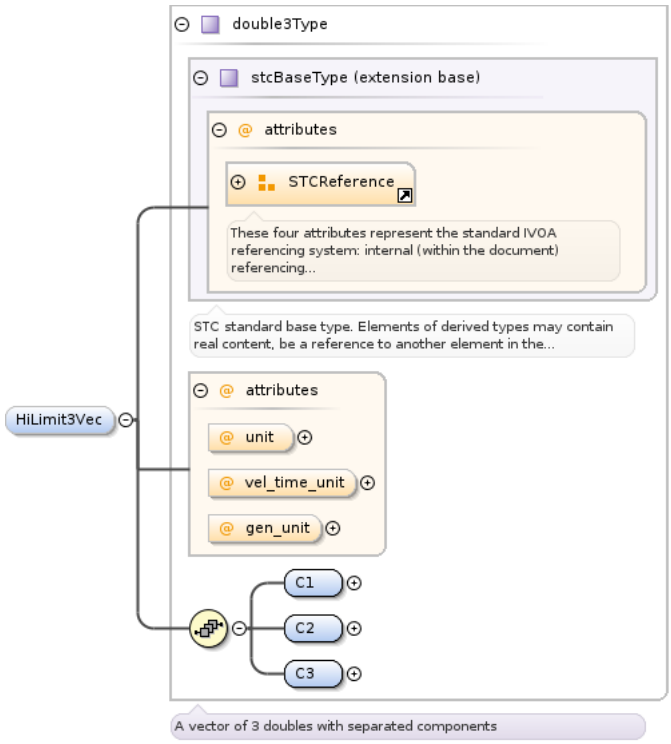
| | |
|---|---|
| Diagram |  |
| Type | double3Type |
| Type hierarchy | • stcBaseType<br>  • double3Type |
| Properties | content: complex<br>minOccurs: 0<br>nillable: true |
| Model | C1 , C2 , C3 |
| Children | C1, C2, C3 |
| Instance | <LoLimit3Vec gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <C1 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C1><br>  <C2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C2><br>  <C3 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C3><br></LoLimit3Vec> |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

| | |
|---|---|
| Source | <xs:element name="LoLimit3Vec" type="double3Type" nillable="true" minOccurs="0"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `pos3VecIntervalType / HiLimit3Vec`

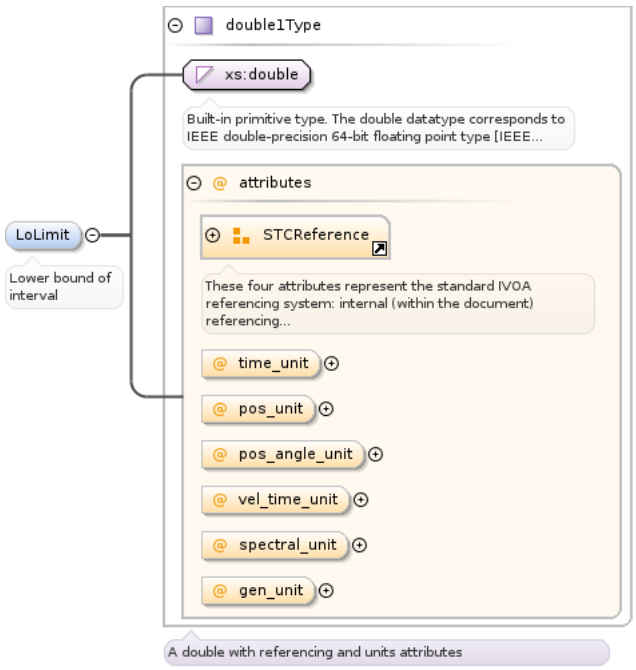
| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Diagram |  |
| Type | double3Type |
| Type hierarchy | • stcBaseType<br>  • double3Type |
| Properties | content: `complex`<br>minOccurs: `0`<br>nillable: `true` |
| Model | C1 , C2 , C3 |
| Children | C1, C2, C3 |
| `Instance` | `<HiLimit3Vec gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <C1 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp C1>`<br>`  <C2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp C2>`<br>`  <C3 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp C3>`<br>`</HiLimit3Vec>` |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

| | |
|---|---|
| Source | `<xs:element name="HiLimit3Vec" type="double3Type" nillable="true" minOccurs="0"/>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `velScalarIntervalType / LoLimit`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `Lower bound of interval` |
| Diagram |  |
| Type | double1Type |

**Properties**

| | |
|---|---|
| content: | `complex` |
| minOccurs: | `0` |
| nillable: | `true` |

**Attributes**

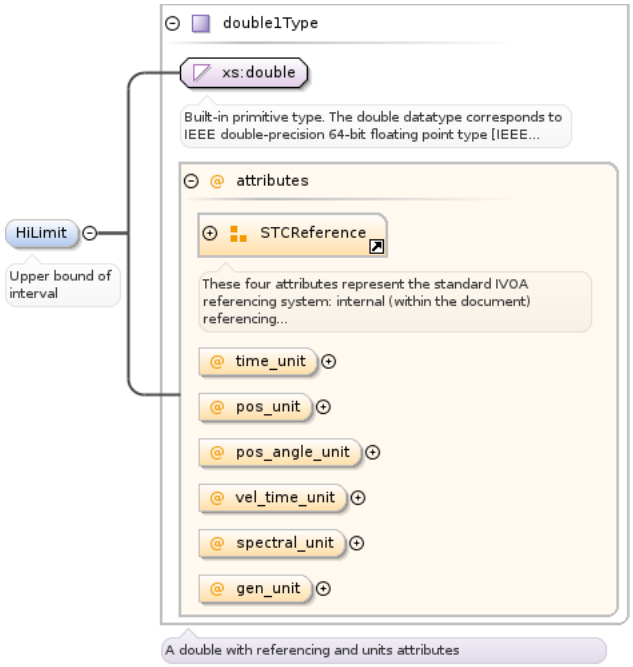
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **pos_angle_unit** | angleUnitType | | | optional |
| **pos_unit** | posUnitType | | | optional |
| **spectral_unit** | spectralUnitType | | | optional |
| **time_unit** | timeUnitType | | | optional |
| **ucd** | xs:string | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

**Source**

```
<xs:element name="LoLimit" type="double1Type" nillable="true" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Lower bound of interval</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `velScalarIntervalType / HiLimit`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `Upper bound of interval` |
| Diagram |  |
| Type | double1Type |

**Properties**

| | |
|---|---|
| content: | `complex` |
| minOccurs: | `0` |
| nillable: | `true` |

**Attributes**

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **pos_angle_unit** | angleUnitType | | | optional |
| **pos_unit** | posUnitType | | | optional |
| **spectral_unit** | spectralUnitType | | | optional |
| **time_unit** | timeUnitType | | | optional |
| **ucd** | xs:string | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

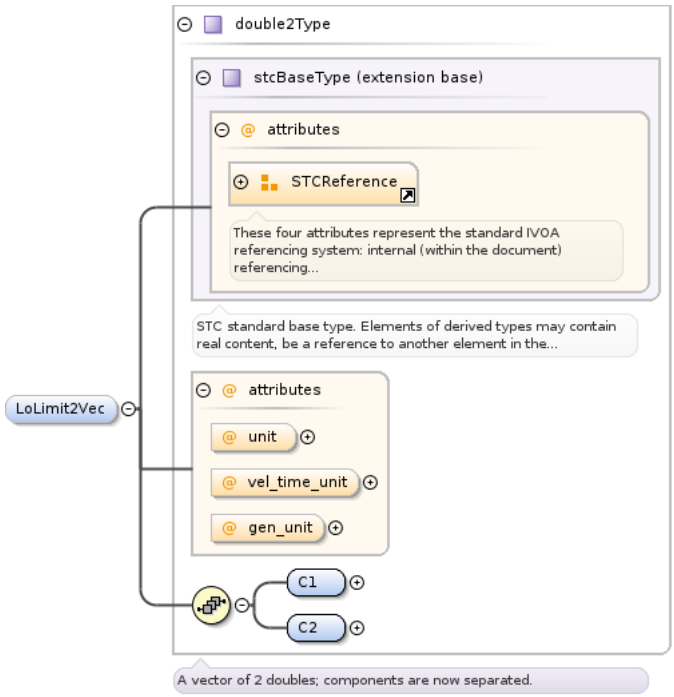
**Source**

```
<xs:element name="HiLimit" type="double1Type" nillable="true" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Upper bound of interval</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `vel2VecIntervalType / LoLimit2Vec`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

| | |
|---|---|
| Diagram |  |
| Type | double2Type |
| Type hierarchy | • stcBaseType<br>  • double2Type |
| Properties | content: complex<br>minOccurs: 0<br>nillable: true |
| Model | C1 , C2 |
| Children | C1, C2 |
| Instance | <LoLimit2Vec gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <C1 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C1><br>  <C2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C2><br></LoLimit2Vec> |

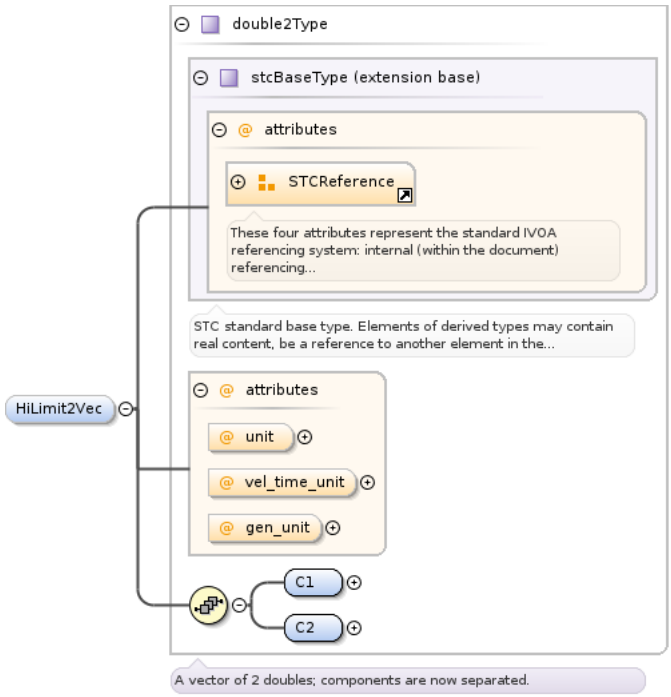
Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

| | |
|---|---|
| Source | <xs:element name="LoLimit2Vec" type="double2Type" nillable="true" minOccurs="0"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element vel2VecIntervalType / HiLimit2Vec

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

| | |
|---|---|
| Diagram |  |
| Type | double2Type |
| Type hierarchy | • stcBaseType<br>  • double2Type |
| Properties | content: complex<br>minOccurs: 0<br>nillable: true |
| Model | C1 , C2 |
| Children | C1, C2 |
| Instance | <HiLimit2Vec gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <C1 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C1><br>  <C2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C2><br></HiLimit2Vec> |

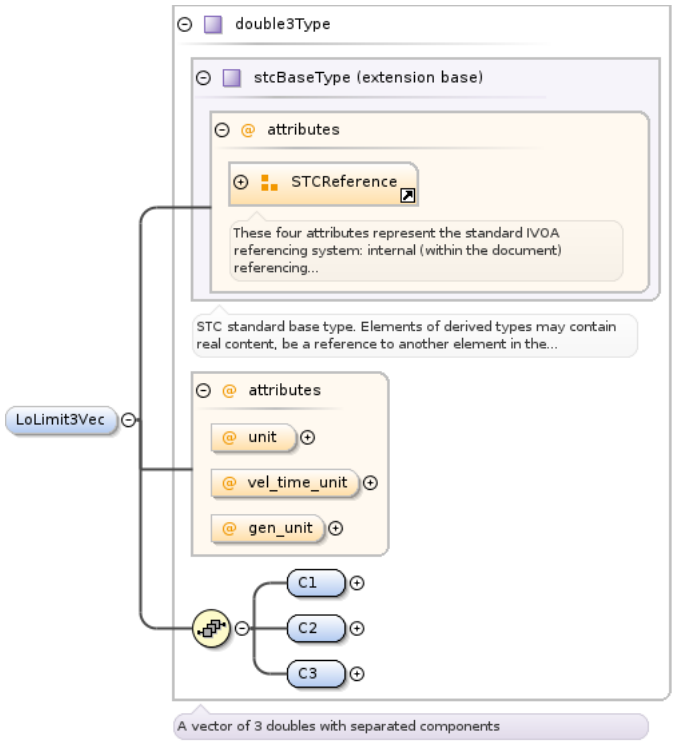
Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

| | |
|---|---|
| Source | <xs:element name="HiLimit2Vec" type="double2Type" nillable="true" minOccurs="0"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element vel3VecIntervalType / LoLimit3Vec

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

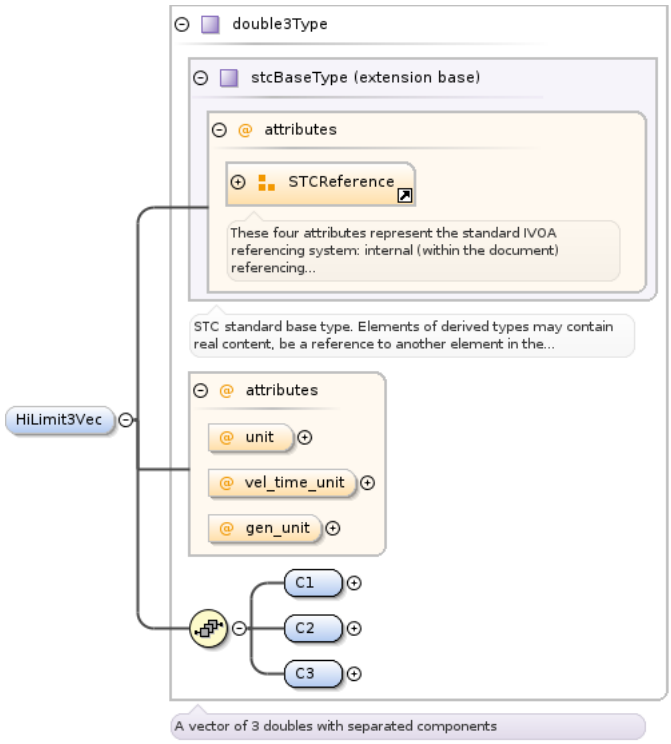
| | |
|---|---|
| Diagram |  |
| Type | double3Type |
| Type hierarchy | • stcBaseType<br>  • double3Type |
| Properties | content: complex<br>minOccurs: 0<br>nillable: true |
| Model | C1 , C2 , C3 |
| Children | C1, C2, C3 |
| Instance | <LoLimit3Vec gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <C1 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C1><br>  <C2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C2><br>  <C3 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C3><br></LoLimit3Vec> |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

| | |
|---|---|
| Source | <xs:element name="LoLimit3Vec" type="double3Type" nillable="true" minOccurs="0"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `vel3VecIntervalType / HiLimit3Vec`

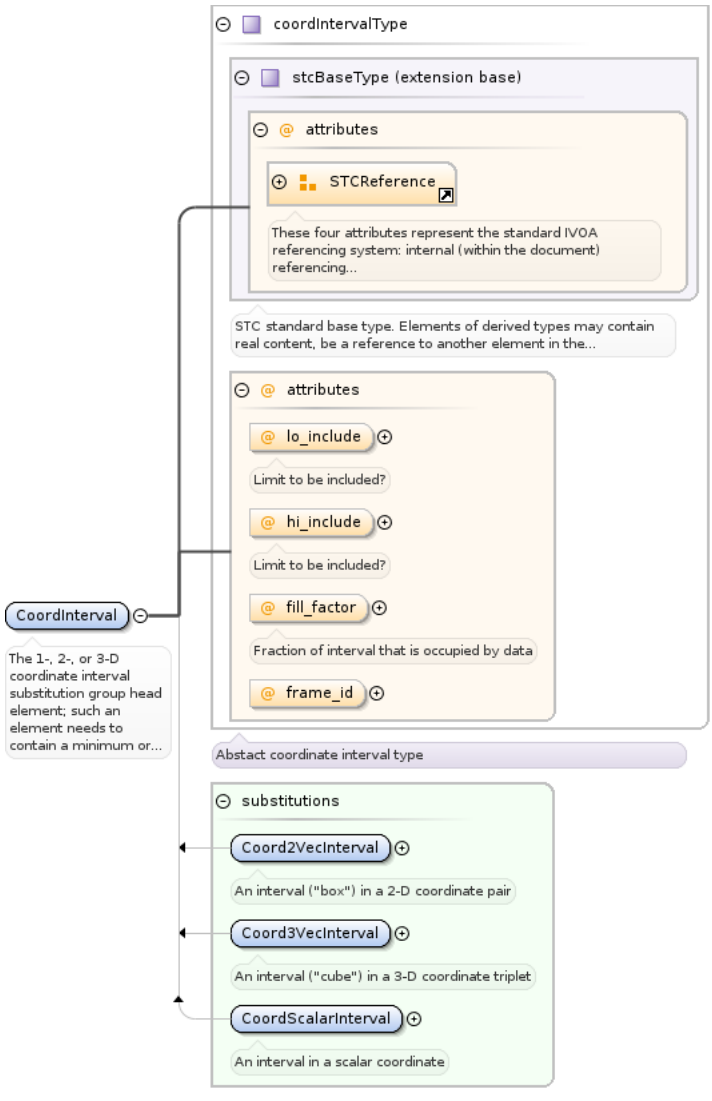
| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Diagram |  |
| Type | double3Type |
| Type hierarchy | • stcBaseType<br>  • double3Type |
| Properties | content: `complex`<br>minOccurs: `0`<br>nillable: `true` |
| Model | C1 , C2 , C3 |
| Children | C1, C2, C3 |
| `Instance` | `<HiLimit3Vec gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <C1 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp C1>`<br>`  <C2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp C2>`<br>`  <C3 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp C3>`<br>`</HiLimit3Vec>` |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

| | |
|---|---|
| Source | `<xs:element name="HiLimit3Vec" type="double3Type" nillable="true" minOccurs="0"/>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `CoordInterval`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The 1-, 2-, or 3-D coordinate interval substitution group head element; such an element needs to contain a minimum or maximum scalar or vector value, or both; it needs to refer to a coordinate system; boundaries may or may not be inclusive; and it can have a fill factor |
| Diagram |  |
| Type | coordIntervalType |
| Type hierarchy | • stcBaseType<br>  • coordIntervalType |
| Properties | content: `complex`<br>nillable: `true` |
| Substitution Group | • CoordScalarInterval<br>• Coord2VecInterval<br>• Coord3VecInterval |
| Used by | Complex Types: astroCoordAreaType, coordAreaType, pixelCoordAreaType |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **ID_type** | xs:string | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | `Fraction of interval that is occupied by data` | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

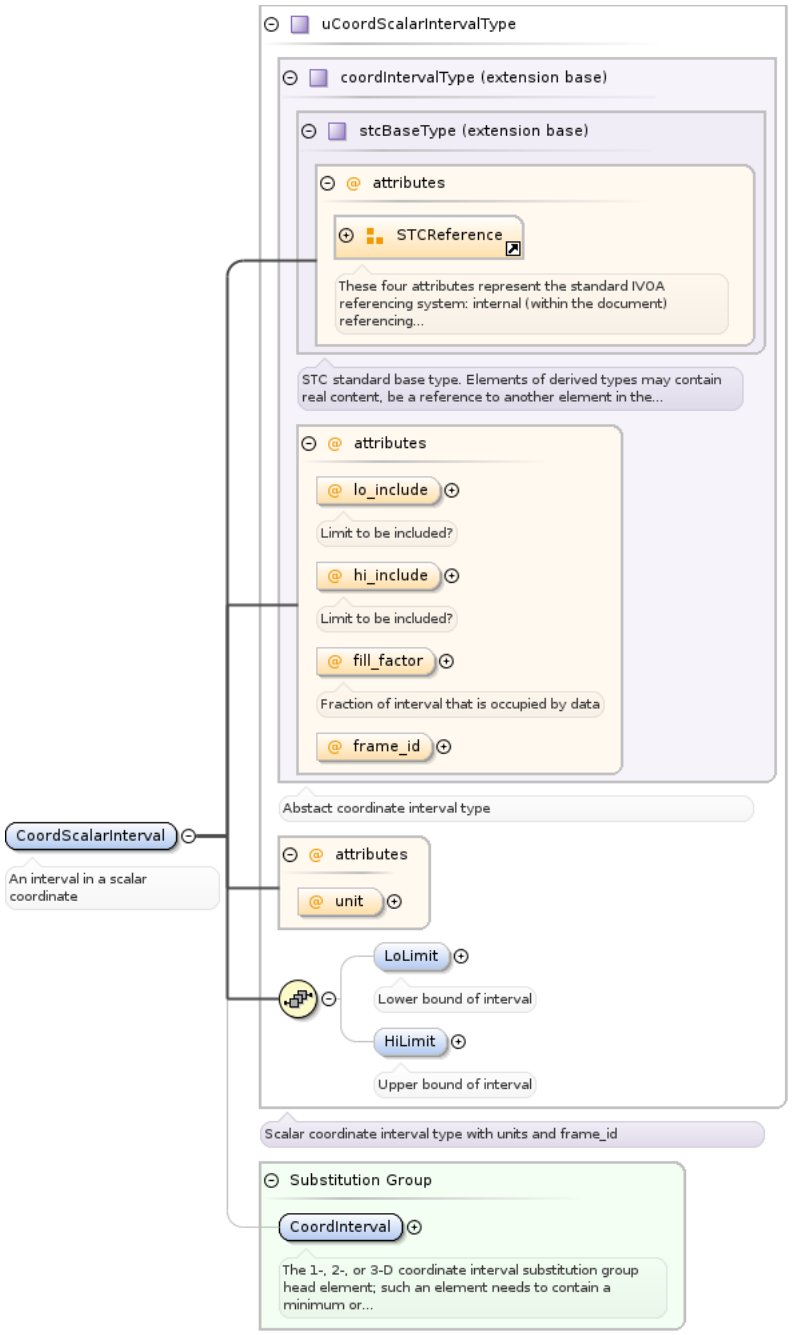
Source

```
<xs:element name="CoordInterval" type="coordIntervalType" nillable="true">
  <xs:annotation>
    <xs:documentation>The 1-, 2-, or 3-D coordinate interval substitution group head
 element; such an element needs to contain a minimum or maximum scalar or vector value, or
 both; it needs to refer to a coordinate system; boundaries may or may not be inclusive;
 and it can have a fill factor</xs:documentation>
  </xs:annotation>
</xs:element>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Element `CoordScalarInterval`

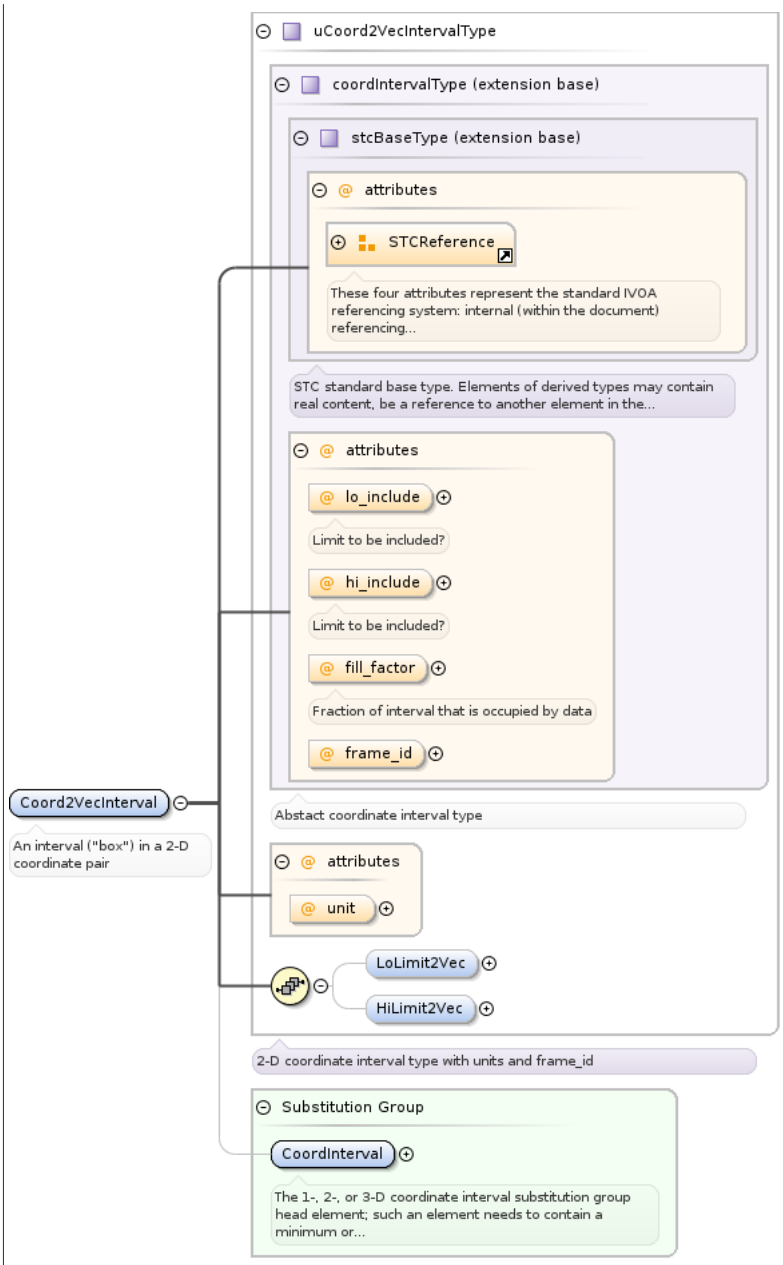
| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `An interval in a scalar coordinate` |

| | |
|---|---|
| Diagram |  |
| Type | uCoordScalarIntervalType |
| Type hierarchy | • stcBaseType<br>  • coordIntervalType<br>  • uCoordScalarIntervalType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • CoordInterval |
| Model | LoLimit{0,1} , HiLimit{0,1} |
| Children | HiLimit, LoLimit |
| Instance | <CoordScalarInterval fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="" ID_type="" idre<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <LoLimit gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit=<br>LoLimit> |

<table>
<tr><td></td><td><pre>  <HiLimit gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit=
HiLimit>
</CoordScalarInterval></pre></td></tr>
<tr><td>Attributes</td><td>
<table>
<tr><th>QName</th><th>Type</th><th>Fixed</th><th>Default</th><th>Use</th></tr>
<tr><td>IDREF_type</td><td>xs:string</td><td></td><td></td><td>optional</td></tr>
<tr><td>ID_type</td><td>xs:string</td><td></td><td></td><td>optional</td></tr>
<tr><td>fill_factor</td><td>xs:float</td><td></td><td>1.0</td><td>optional</td></tr>
<tr><td></td><td colspan="4">Fraction of interval that is occupied by data</td></tr>
<tr><td>frame_id</td><td>xs:IDREF</td><td></td><td></td><td>optional</td></tr>
<tr><td>hi_include</td><td>xs:boolean</td><td></td><td>true</td><td>optional</td></tr>
<tr><td></td><td colspan="4">Limit to be included?</td></tr>
<tr><td>id</td><td>xs:ID</td><td></td><td></td><td>optional</td></tr>
<tr><td>idref</td><td>xs:IDREF</td><td></td><td></td><td>optional</td></tr>
<tr><td>lo_include</td><td>xs:boolean</td><td></td><td>true</td><td>optional</td></tr>
<tr><td></td><td colspan="4">Limit to be included?</td></tr>
<tr><td>ucd</td><td>xs:string</td><td></td><td></td><td>optional</td></tr>
<tr><td>unit</td><td>unitType</td><td></td><td></td><td>optional</td></tr>
<tr><td>xlink:href</td><td>xs:anyURI</td><td></td><td></td><td>optional</td></tr>
<tr><td>xlink:type</td><td>restriction of xs:NMTOKEN</td><td></td><td>simple</td><td>optional</td></tr>
</table>
</td></tr>
<tr><td>Source</td><td><pre><xs:element name="CoordScalarInterval" type="uCoordScalarIntervalType"
 substitutionGroup="CoordInterval" nillable="true">
  <xs:annotation>
    <xs:documentation>An interval in a scalar coordinate</xs:documentation>
  </xs:annotation>
</xs:element></pre></td></tr>
<tr><td>Schema location</td><td>http://www.ivoa.net/xml/STC/stc-v1.30.xsd</td></tr>
</table>

## Element `Coord2VecInterval`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | An interval ("box") in a 2-D coordinate pair |

| | |
|---|---|
| Diagram |  |
| Type | uCoord2VecIntervalType |
| Type hierarchy | • stcBaseType<br>  • coordIntervalType<br>  • uCoord2VecIntervalType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • CoordInterval |
| Model | LoLimit2Vec{0,1} , HiLimit2Vec{0,1} |
| Children | HiLimit2Vec, LoLimit2Vec |
| Instance | <Coord2VecInterval fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="" ID_type="" idref=<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <LoLimit2Vec gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd<br>LoLimit2Vec><br>  <HiLimit2Vec gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd<br>HiLimit2Vec><br></Coord2VecInterval> |

| | | | | | |
|---|---|---|---|---|---|
| Attributes | **QName** | **Type** | **Fixed** | **Default** | **Use** |
| | **IDREF_type** | xs:string | | | optional |
| | **ID_type** | xs:string | | | optional |
| | **fill_factor** | xs:float | | 1.0 | optional |
| | | `Fraction of interval that is occupied by data` | | | |
| | **frame_id** | xs:IDREF | | | optional |
| | **hi_include** | xs:boolean | | true | optional |
| | | `Limit to be included?` | | | |
| | **id** | xs:ID | | | optional |
| | **idref** | xs:IDREF | | | optional |
| | **lo_include** | xs:boolean | | true | optional |
| | | `Limit to be included?` | | | |
| | **ucd** | xs:string | | | optional |
| | **unit** | unitType | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

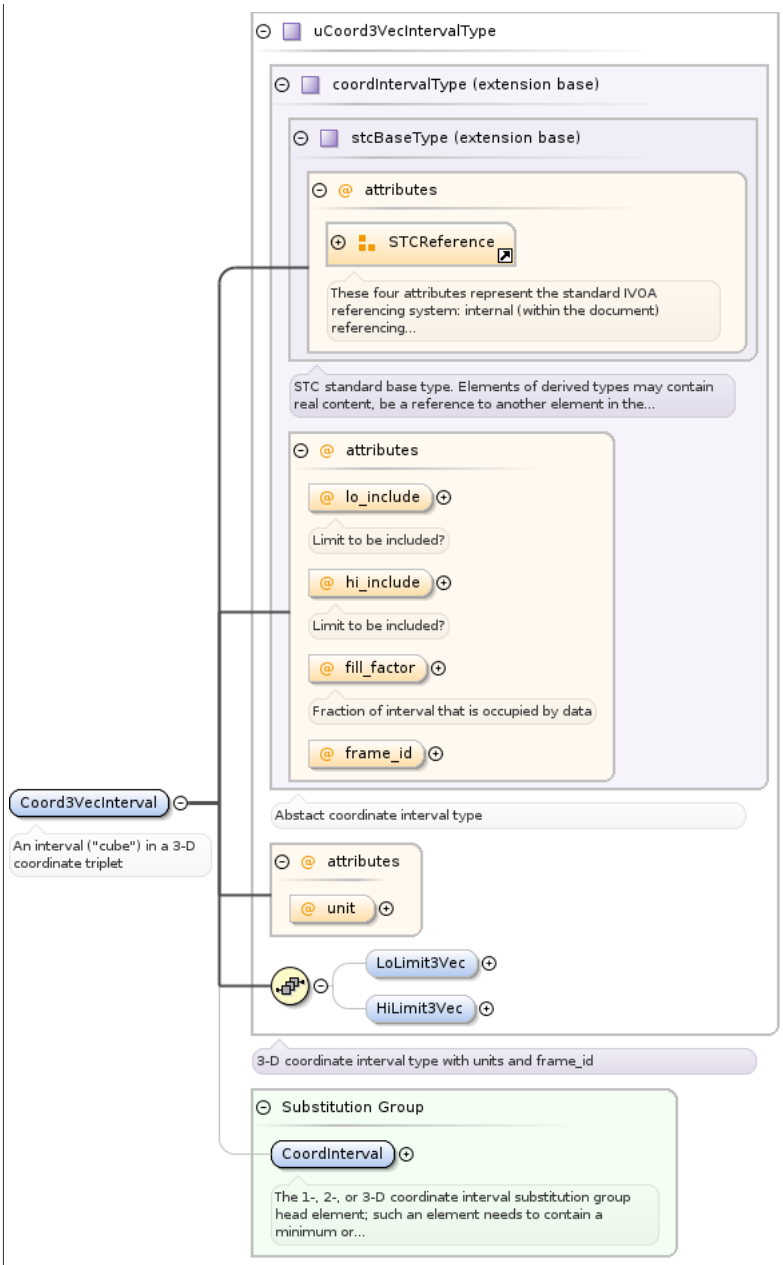
`Source`

```
<xs:element name="Coord2VecInterval" type="uCoord2VecIntervalType"
 substitutionGroup="CoordInterval" nillable="true">
  <xs:annotation>
    <xs:documentation>An interval ("box") in a 2-D coordinate pair</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `Coord3VecInterval`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `An interval ("cube") in a 3-D coordinate triplet` |

| | |
|---|---|
| Diagram |  |
| Type | uCoord3VecIntervalType |
| Type hierarchy | • stcBaseType<br>  • coordIntervalType<br>  • uCoord3VecIntervalType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • CoordInterval |
| Model | LoLimit3Vec{0,1} , HiLimit3Vec{0,1} |
| Children | HiLimit3Vec, LoLimit3Vec |
| Instance | <Coord3VecInterval fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="" ID_type="" idref=<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <LoLimit3Vec gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd<br>LoLimit3Vec><br>  <HiLimit3Vec gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd<br>HiLimit3Vec><br></Coord3VecInterval> |

| | | | | | |
|---|---|---|---|---|---|
| Attributes | **QName** | **Type** | **Fixed** | **Default** | **Use** |
| | **IDREF_type** | xs:string | | | optional |
| | **ID_type** | xs:string | | | optional |
| | **fill_factor** | xs:float | | 1.0 | optional |
| | | Fraction of interval that is occupied by data | | | |
| | **frame_id** | xs:IDREF | | | optional |
| | **hi_include** | xs:boolean | | true | optional |
| | | Limit to be included? | | | |
| | **id** | xs:ID | | | optional |
| | **idref** | xs:IDREF | | | optional |
| | **lo_include** | xs:boolean | | true | optional |
| | | Limit to be included? | | | |
| | **ucd** | xs:string | | | optional |
| | **unit** | unitType | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

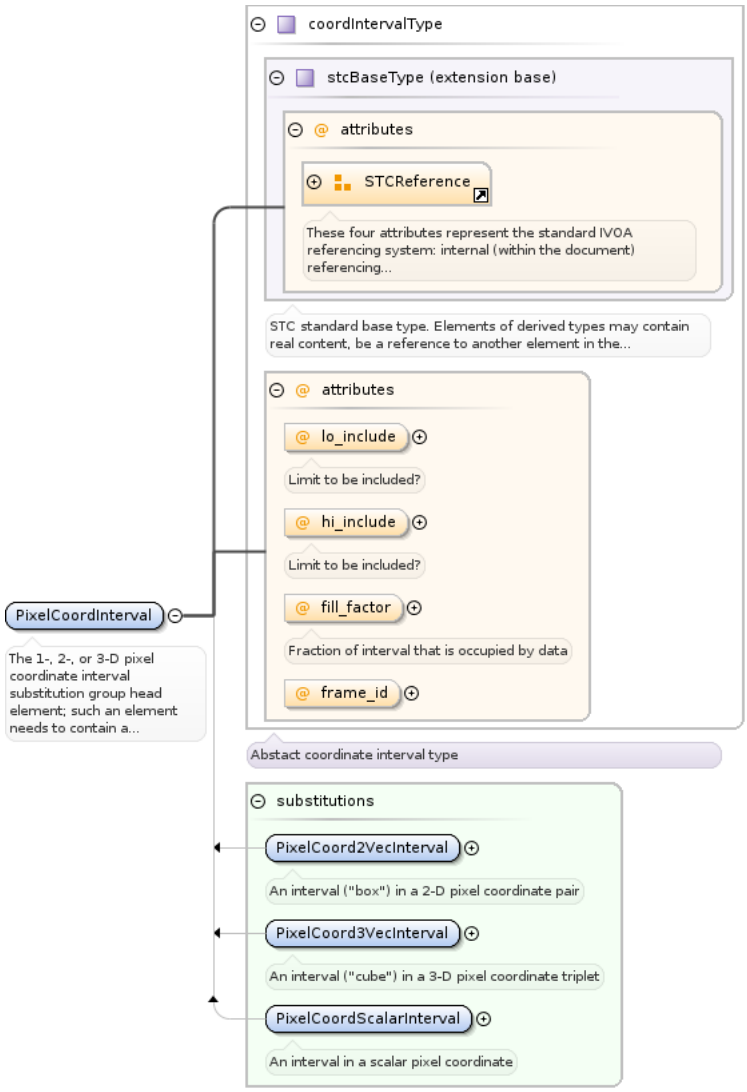
Source

```
<xs:element name="Coord3VecInterval" type="uCoord3VecIntervalType"
 substitutionGroup="CoordInterval" nillable="true">
  <xs:annotation>
    <xs:documentation>An interval ("cube") in a 3-D coordinate triplet</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `PixelCoordInterval`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The 1-, 2-, or 3-D pixel coordinate interval substitution group head element; such an element needs to contain a minimum or maximum scalar or vector value, or both; it needs to refer to a coordinate system; boundaries may or may not be inclusive; and it can have a fill factor |

| | |
|---|---|
| Diagram |  |
| Type | coordIntervalType |
| Type hierarchy | • stcBaseType<br>  • coordIntervalType |
| Properties | content: `complex`<br>nillable: `true` |
| `Substitution Group` | • PixelCoordScalarInterval<br>• PixelCoord2VecInterval<br>• PixelCoord3VecInterval |
| Used by | Complex Type pixelCoordAreaType |

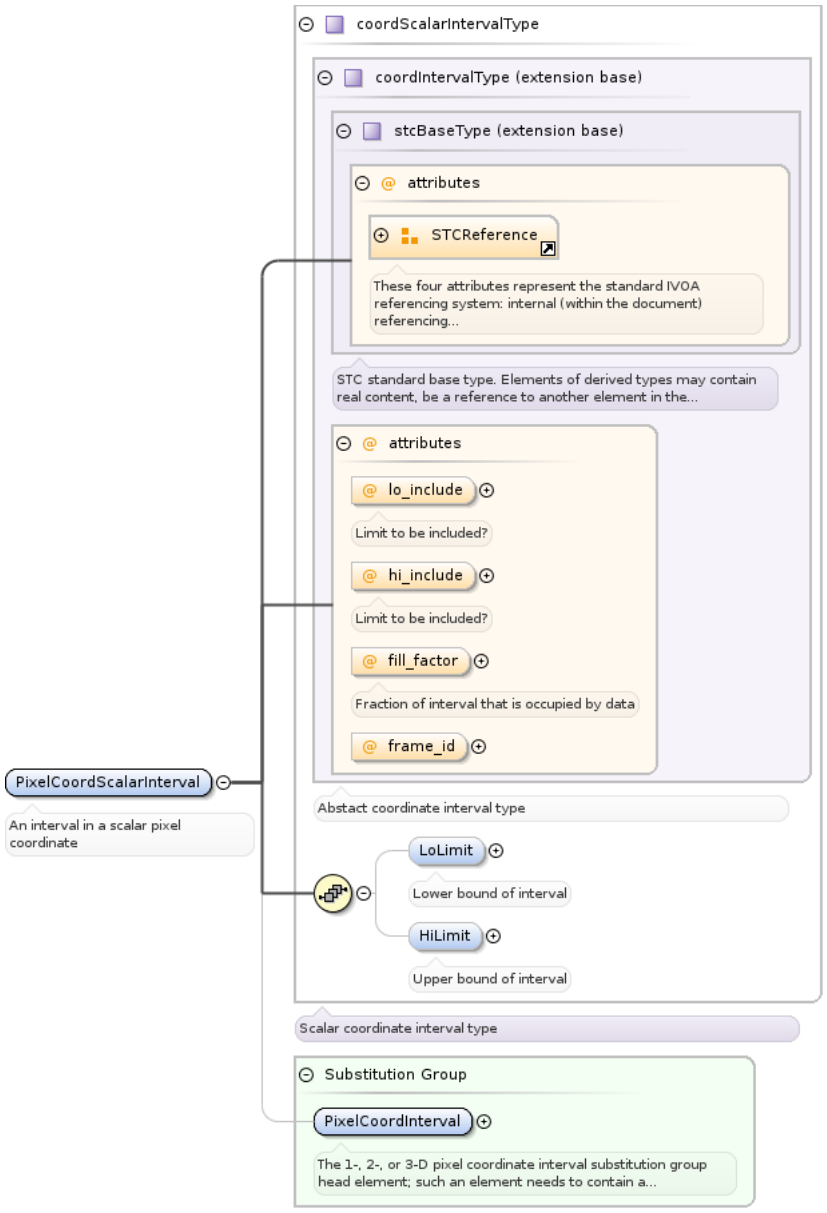
Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | `Fraction of interval that is occupied by data` | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **id** | xs:ID | | | optional |

| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **idref** | xs:IDREF | | | optional |
| | **lo_include** | xs:boolean | | true | optional |
| | | `Limit to be included?` | | | |
| | **ucd** | xs:string | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |
| Source | <xs:element name="PixelCoordInterval" type="coordIntervalType" nillable="true"><br><xs:annotation><br><xs:documentation>The 1-, 2-, or 3-D pixel coordinate interval substitution group head element; such an element needs to contain a minimum or maximum scalar or vector value, or both; it needs to refer to a coordinate system; boundaries may or may not be inclusive; and it can have a fill factor</xs:documentation><br></xs:annotation><br></xs:element> | | | | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | | | | |

## Element `PixelCoordScalarInterval`

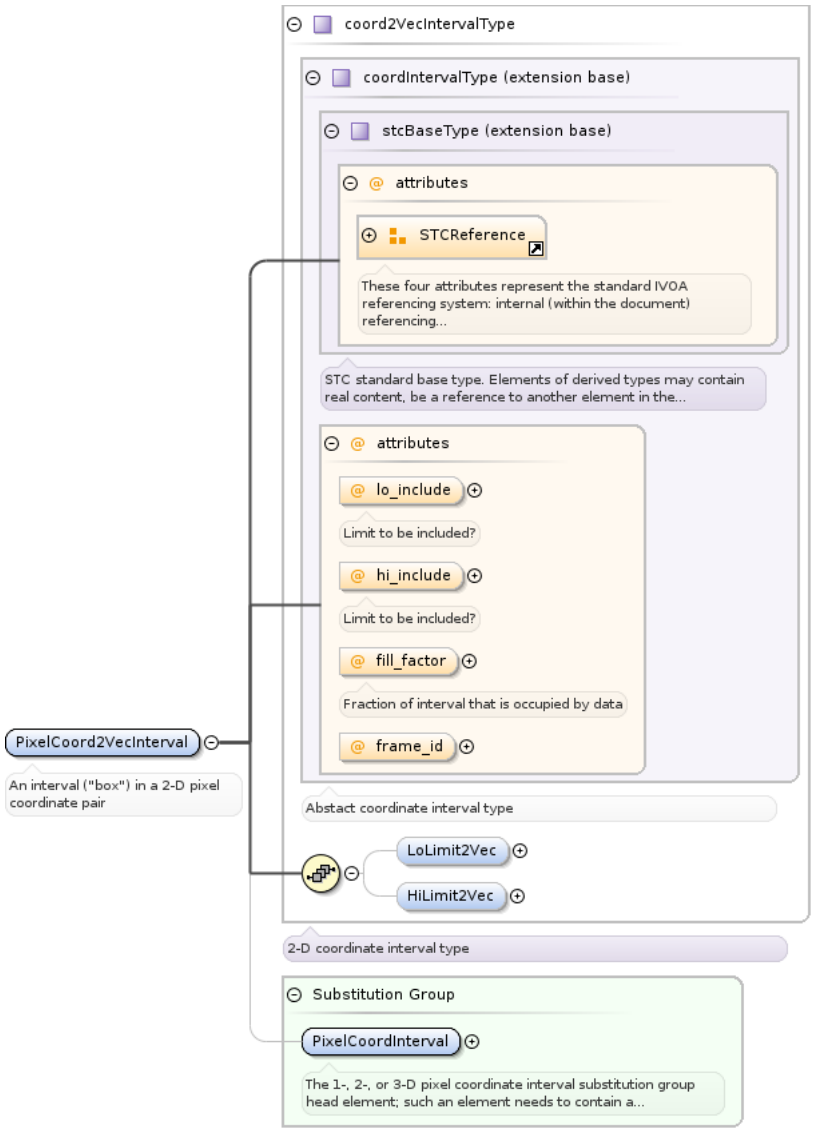
| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `An interval in a scalar pixel coordinate` |

| | |
|---|---|
| Diagram |  |
| Type | coordScalarIntervalType |
| Type hierarchy | • stcBaseType<br>  • coordIntervalType<br>  • coordScalarIntervalType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • PixelCoordInterval |
| Model | LoLimit{0,1} , HiLimit{0,1} |
| Children | HiLimit, LoLimit |
| Instance | <PixelCoordScalarInterval fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="" ID_type="" www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <LoLimit gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit= LoLimit><br>  <HiLimit gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit= HiLimit><br></PixelCoordScalarInterval> |

| | | | | | |
|---|---|---|---|---|---|
| Attributes | **QName** | **Type** | **Fixed** | **Default** | **Use** |
| | **IDREF_type** | xs:string | | | optional |
| | **ID_type** | xs:string | | | optional |
| | **fill_factor** | xs:float | | 1.0 | optional |
| | | Fraction of interval that is occupied by data | | | |
| | **frame_id** | xs:IDREF | | | optional |
| | **hi_include** | xs:boolean | | true | optional |
| | | Limit to be included? | | | |
| | **id** | xs:ID | | | optional |
| | **idref** | xs:IDREF | | | optional |
| | **lo_include** | xs:boolean | | true | optional |
| | | Limit to be included? | | | |
| | **ucd** | xs:string | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |
| Source | <xs:element name="PixelCoordScalarInterval" type="coordScalarIntervalType" substitutionGroup="PixelCoordInterval" nillable="true"> <xs:annotation> <xs:documentation>An interval in a scalar pixel coordinate</xs:documentation> </xs:annotation> </xs:element> | | | | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | | | | |

## Element PixelCoord2VecInterval

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | An interval ("box") in a 2-D pixel coordinate pair |

| | |
|---|---|
| Diagram |  |
| Type | coord2VecIntervalType |
| Type hierarchy | • stcBaseType<br>  • coordIntervalType<br>  • coord2VecIntervalType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • PixelCoordInterval |
| Model | LoLimit2Vec{0,1} , HiLimit2Vec{0,1} |
| Children | HiLimit2Vec, LoLimit2Vec |
| Instance | <PixelCoord2VecInterval fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="" ID_type="" i<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <LoLimit2Vec gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd<br>LoLimit2Vec><br>  <HiLimit2Vec gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd<br>HiLimit2Vec><br></PixelCoord2VecInterval> |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |

| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **fill_factor** | xs:float | | 1.0 | optional |
| | | Fraction of interval that is occupied by data | | | |
| | **frame_id** | xs:IDREF | | | optional |
| | **hi_include** | xs:boolean | | true | optional |
| | | Limit to be included? | | | |
| | **id** | xs:ID | | | optional |
| | **idref** | xs:IDREF | | | optional |
| | **lo_include** | xs:boolean | | true | optional |
| | | Limit to be included? | | | |
| | **ucd** | xs:string | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

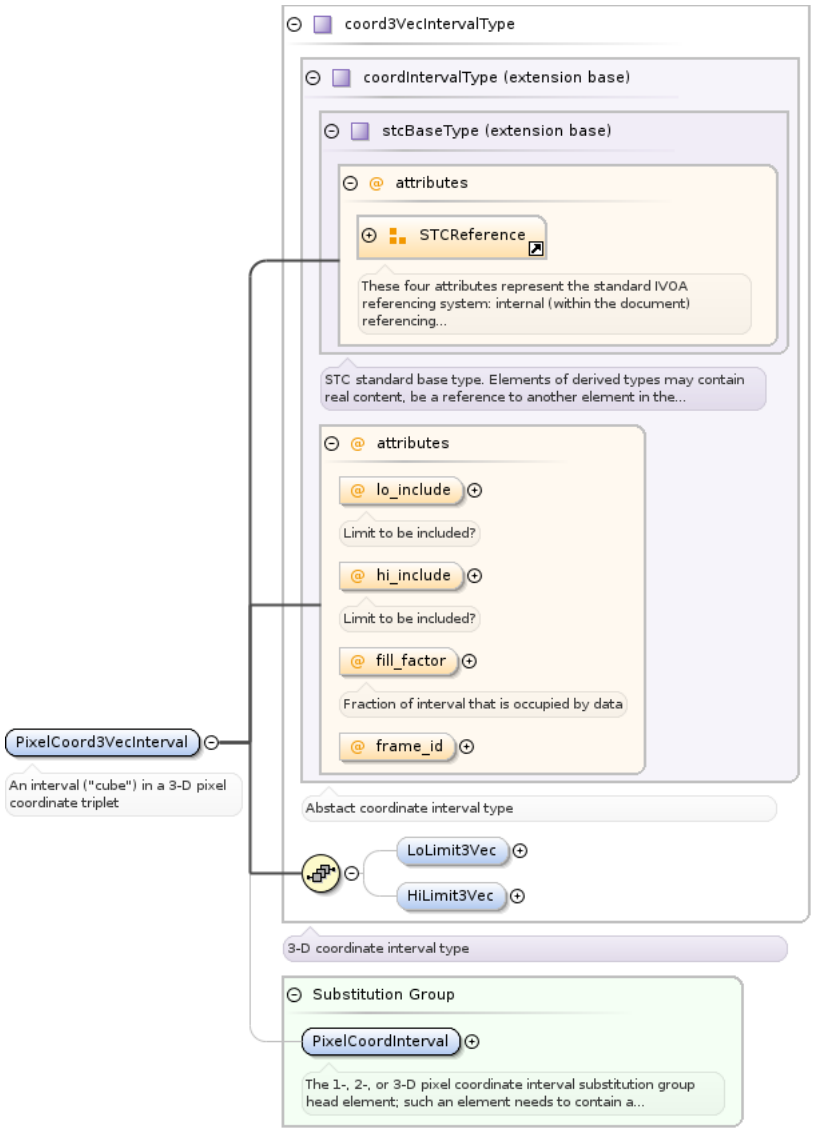
Source

```
<xs:element name="PixelCoord2VecInterval" type="coord2VecIntervalType"
 substitutionGroup="PixelCoordInterval" nillable="true">
  <xs:annotation>
    <xs:documentation>An interval ("box") in a 2-D pixel coordinate pair</
xs:documentation>
  </xs:annotation>
</xs:element>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Element PixelCoord3VecInterval

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | An interval ("cube") in a 3-D pixel coordinate triplet |

| | |
|---|---|
| Diagram |  |
| Type | coord3VecIntervalType |
| Type hierarchy | • stcBaseType<br>  • coordIntervalType<br>  • coord3VecIntervalType |
| Properties | content: `complex`<br>nillable: `true` |
| `Substitution Group Affiliation` | • PixelCoordInterval |
| Model | LoLimit3Vec{0,1} , HiLimit3Vec{0,1} |
| Children | HiLimit3Vec, LoLimit3Vec |
| `Instance` | `<PixelCoord3VecInterval fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="" ID_type="" i`<br>`www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <LoLimit3Vec gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd`<br>`LoLimit3Vec>`<br>`  <HiLimit3Vec gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd`<br>`HiLimit3Vec>`<br>`</PixelCoord3VecInterval>` |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |

| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **fill_factor** | xs:float | | 1.0 | optional |
| | | Fraction of interval that is occupied by data | | | |
| | **frame_id** | xs:IDREF | | | optional |
| | **hi_include** | xs:boolean | | true | optional |
| | | Limit to be included? | | | |
| | **id** | xs:ID | | | optional |
| | **idref** | xs:IDREF | | | optional |
| | **lo_include** | xs:boolean | | true | optional |
| | | Limit to be included? | | | |
| | **ucd** | xs:string | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

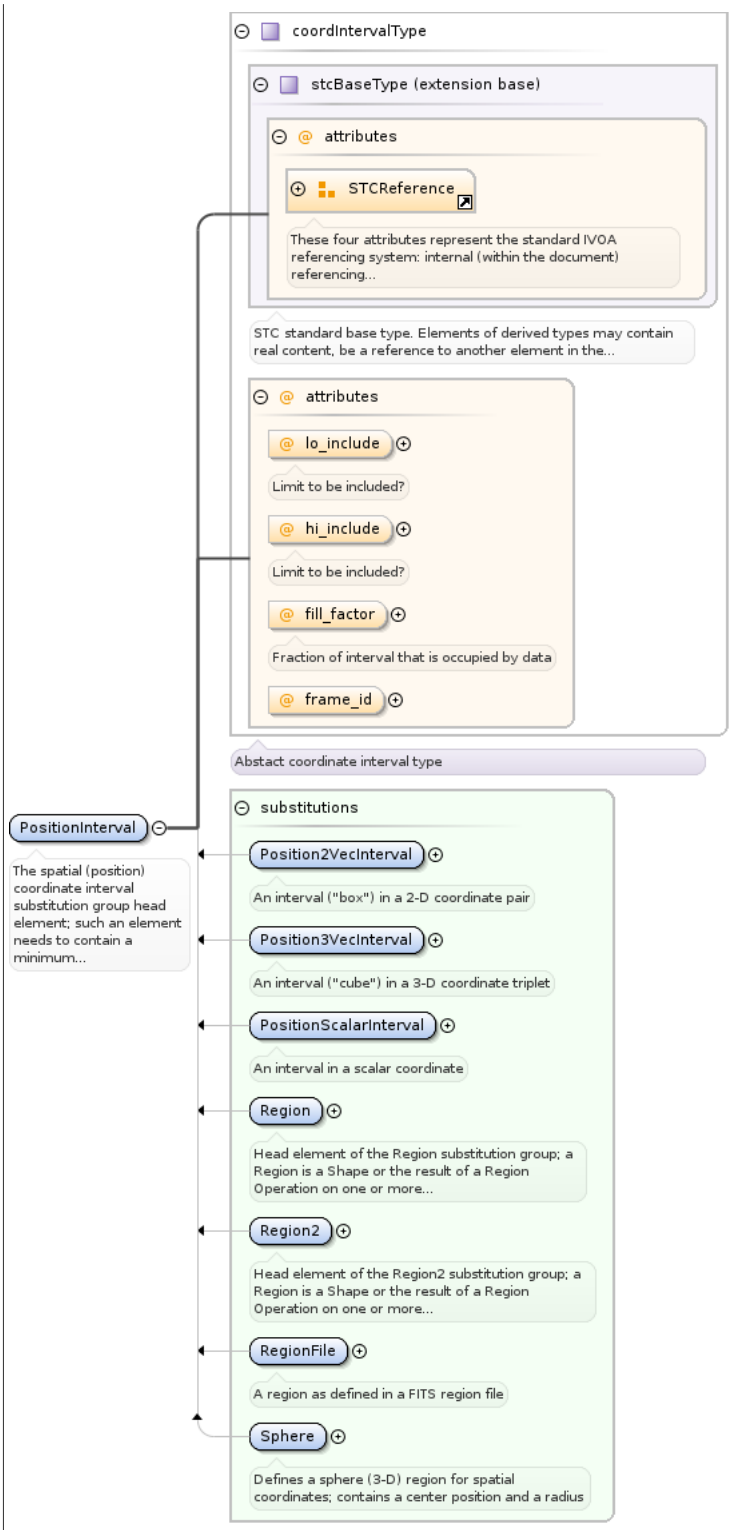
Source

```
<xs:element name="PixelCoord3VecInterval" type="coord3VecIntervalType"
 substitutionGroup="PixelCoordInterval" nillable="true">
  <xs:annotation>
    <xs:documentation>An interval ("cube") in a 3-D pixel coordinate triplet</
xs:documentation>
  </xs:annotation>
</xs:element>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Element PositionInterval

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The spatial (position) coordinate interval substitution group head element; such an element needs to contain a minimum or maximum scalar or vector value, or both; it needs to refer to a coordinate system; boundaries may or may not be inclusive; and it can have a fill factor |

| | |
|---|---|
| Diagram |  |
| Type | coordIntervalType |
| Type hierarchy | • stcBaseType<br>  • coordIntervalType |
| Properties | content: `complex`<br>nillable: `true` |
| `Substitution Group` | • Region<br>• Intersection |

- Union
- Negation
- Difference
- AllSky
- Circle
- Ellipse
- Polygon
- Box
- Sector
- Convex
- ConvexHull
- SkyIndex
- Region2
- Intersection2
- Union2
- Negation2
- Difference2
- AllSky2
- Circle2
- Ellipse2
- Polygon2
- Box2
- Sector2
- Convex2
- ConvexHull2
- SkyIndex2
- PositionScalarInterval
- Position2VecInterval
- Position3VecInterval
- Sphere
- RegionFile

Used by

Complex Type astroCoordAreaType

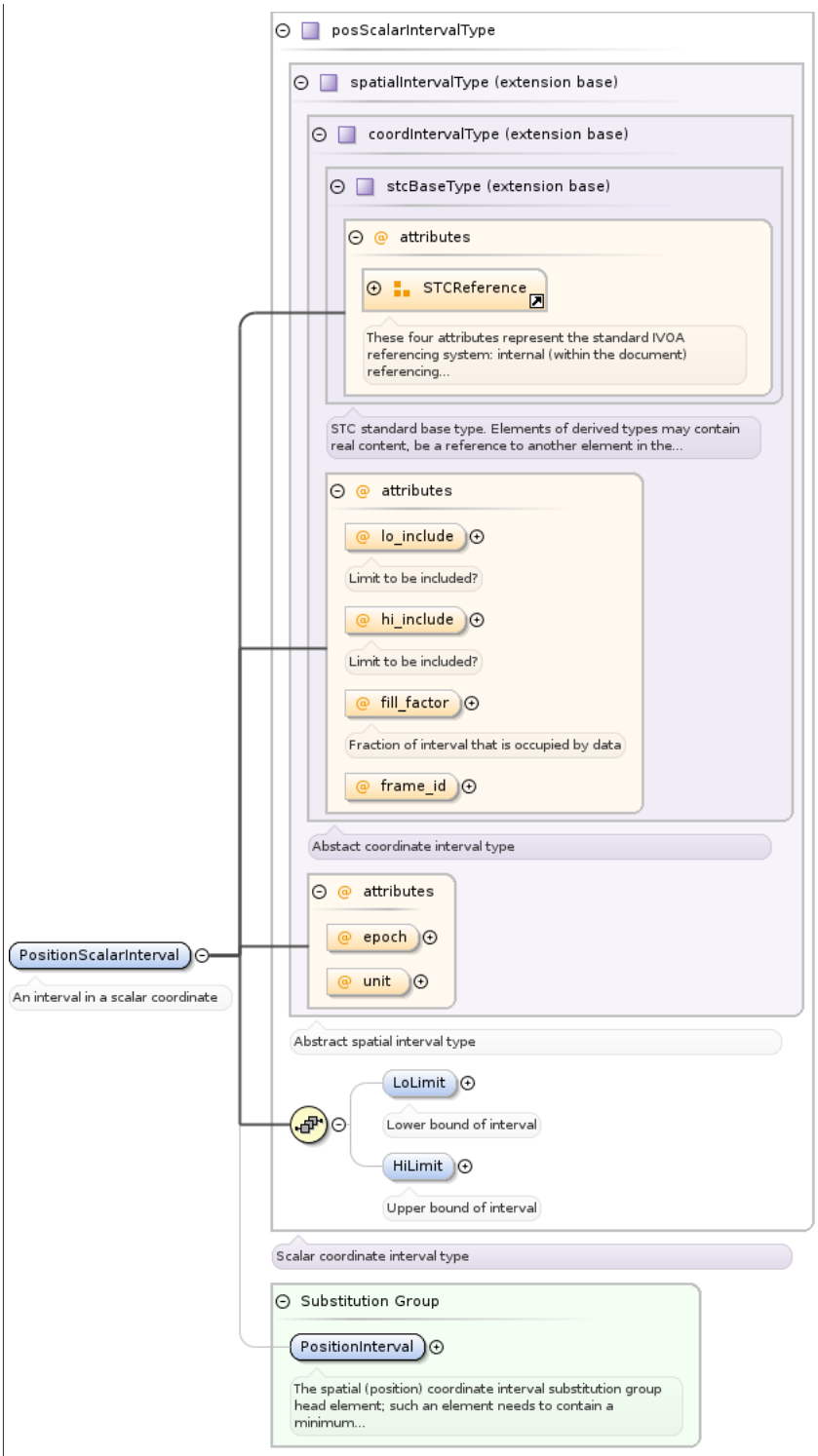
Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | `Fraction of interval that is occupied by data` | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **id** | xs:ID | | | optional |

| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **idref** | xs:IDREF | | | optional |
| | **lo_include** | xs:boolean | | true | optional |
| | | `Limit to be included?` | | | |
| | **ucd** | xs:string | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |
| Source | <xs:element name="PositionInterval" type="coordIntervalType" nillable="true"><br><xs:annotation><br><xs:documentation>The spatial (position) coordinate interval substitution group head element; such an element needs to contain a minimum or maximum scalar or vector value, or both; it needs to refer to a coordinate system; boundaries may or may not be inclusive; and it can have a fill factor</xs:documentation><br></xs:annotation><br></xs:element> | | | | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | | | | |

## Element `PositionScalarInterval`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `An interval in a scalar coordinate` |

| | |
|---|---|
| Diagram |  |
| Type | posScalarIntervalType |
| Type hierarchy | • stcBaseType<br>  • coordIntervalType<br>  • spatialIntervalType<br>  • posScalarIntervalType |
| Properties | content: `complex`<br>nillable: `true` |

| | |
|---|---|
| Substitution Group Affiliation | • PositionInterval |
| Model | LoLimit{0,1} , HiLimit{0,1} |
| Children | HiLimit, LoLimit |
| Instance | <PositionScalarInterval epoch="" fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="" ID_<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <LoLimit gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit=<br>LoLimit><br>  <HiLimit gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit=<br>HiLimit><br></PositionScalarInterval> |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | Fraction of interval that is occupied by data | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

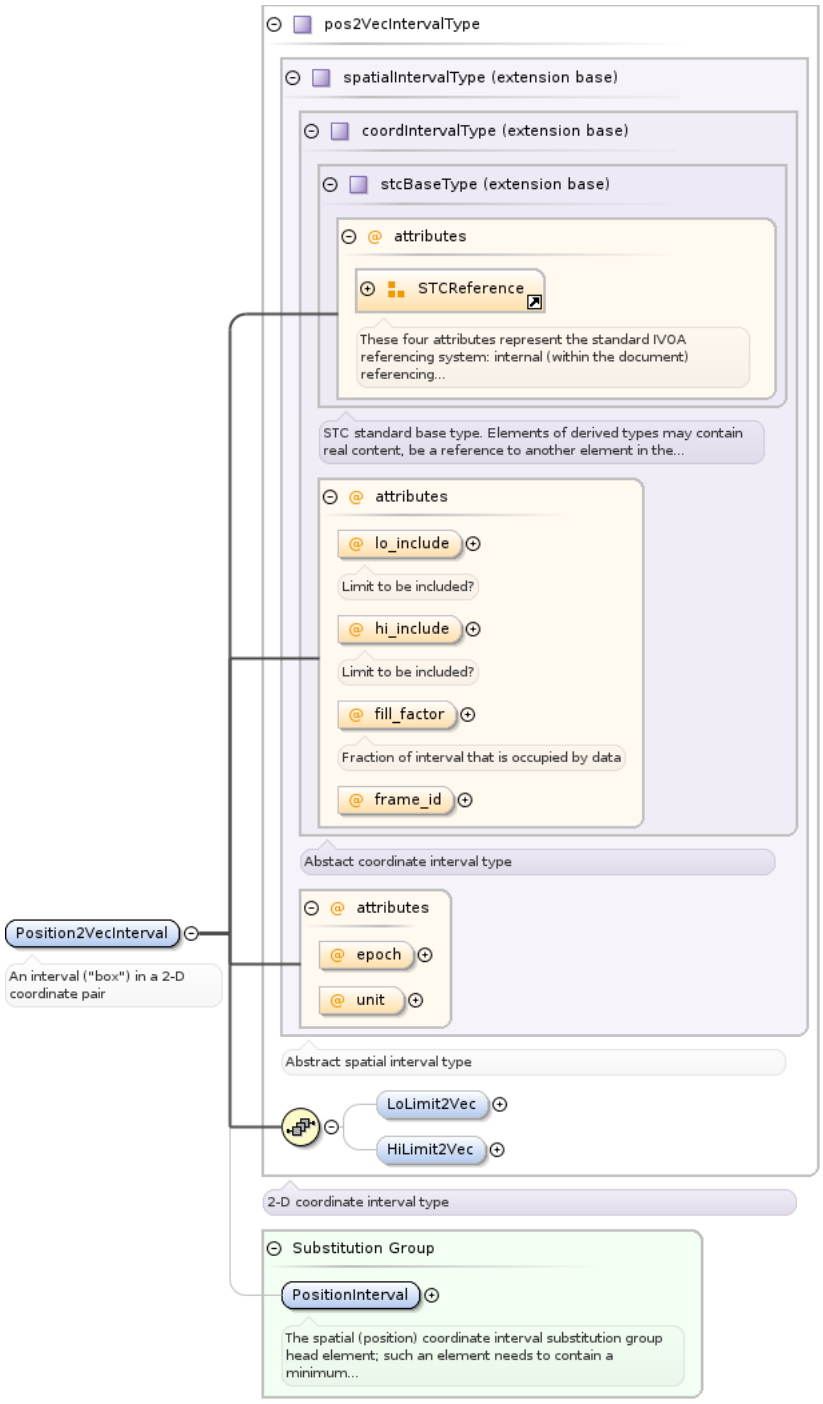
Source

```
<xs:element name="PositionScalarInterval" type="posScalarIntervalType"
 substitutionGroup="PositionInterval" nillable="true">
  <xs:annotation>
    <xs:documentation>An interval in a scalar coordinate</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element Position2VecInterval

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | An interval ("box") in a 2-D coordinate pair |

| | |
|---|---|
| Diagram |  |
| Type | pos2VecIntervalType |
| Type hierarchy | • stcBaseType<br>• coordIntervalType<br>• spatialIntervalType<br>• pos2VecIntervalType |
| Properties | content: `complex`<br>nillable: `true` |
| `Substitution Group Affiliation` | • PositionInterval |
| Model | LoLimit2Vec{0,1} , HiLimit2Vec{0,1} |
| Children | HiLimit2Vec, LoLimit2Vec |

| | |
|---|---|
| Instance | <Position2VecInterval epoch="" fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="" ID_ty<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <LoLimit2Vec gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd<br>LoLimit2Vec><br>  <HiLimit2Vec gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd<br>HiLimit2Vec><br></Position2VecInterval> |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | Fraction of interval that is occupied by data | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

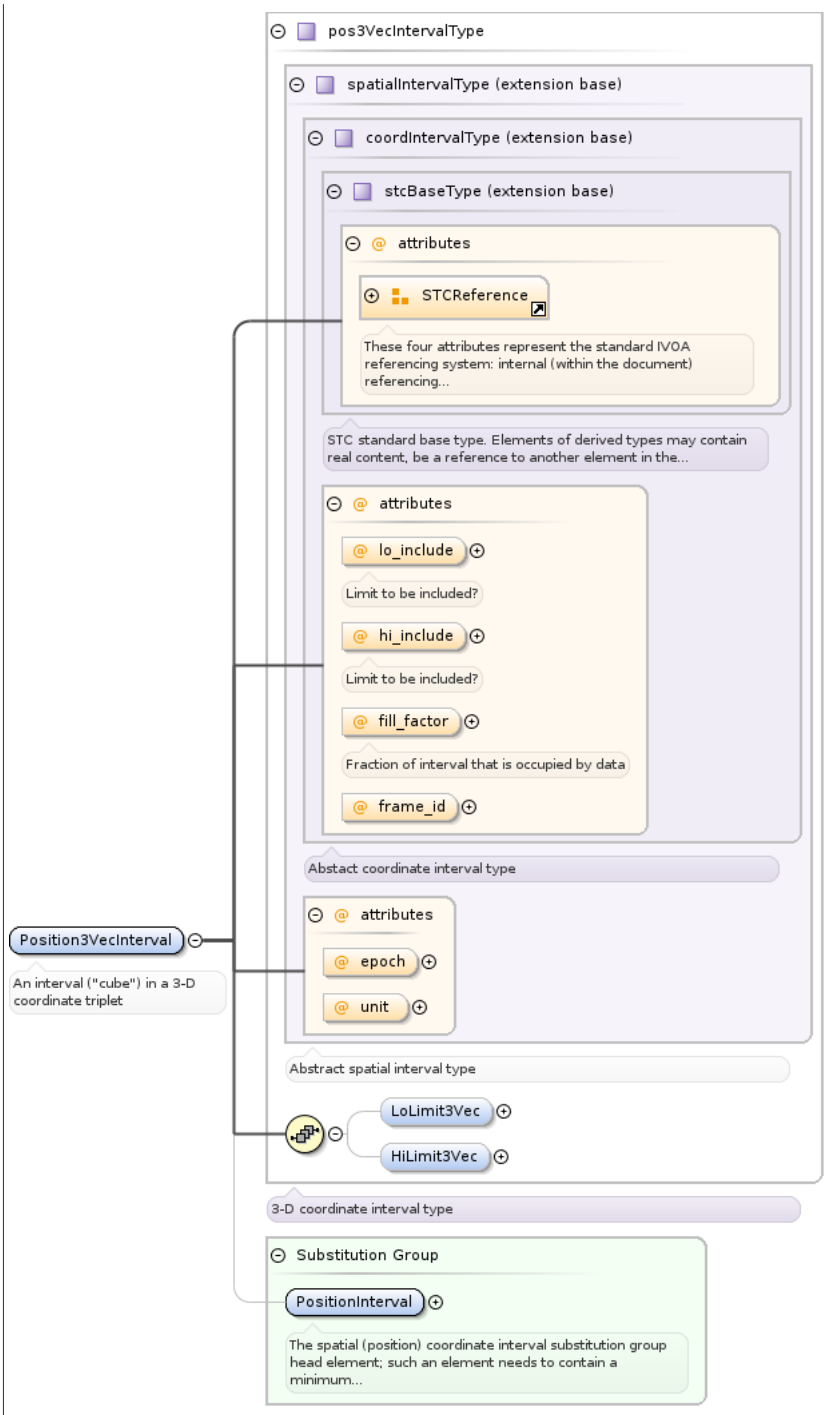
Source

```
<xs:element name="Position2VecInterval" type="pos2VecIntervalType"
 substitutionGroup="PositionInterval" nillable="true">
  <xs:annotation>
    <xs:documentation>An interval ("box") in a 2-D coordinate pair</xs:documentation>
  </xs:annotation>
</xs:element>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Element Position3VecInterval

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | An interval ("cube") in a 3-D coordinate triplet |

| | |
|---|---|
| Diagram |  |
| Type | pos3VecIntervalType |
| Type hierarchy | • stcBaseType<br>• coordIntervalType<br>• spatialIntervalType<br>• pos3VecIntervalType |
| Properties | content: `complex`<br>nillable: `true` |
| `Substitution Group Affiliation` | • PositionInterval |
| Model | LoLimit3Vec{0,1} , HiLimit3Vec{0,1} |
| Children | HiLimit3Vec, LoLimit3Vec |

| | |
|---|---|
| Instance | <Position3VecInterval epoch="" fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="" ID_ty<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <LoLimit3Vec gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd<br>LoLimit3Vec><br>  <HiLimit3Vec gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd<br>HiLimit3Vec><br></Position3VecInterval> |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | Fraction of interval that is occupied by data | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

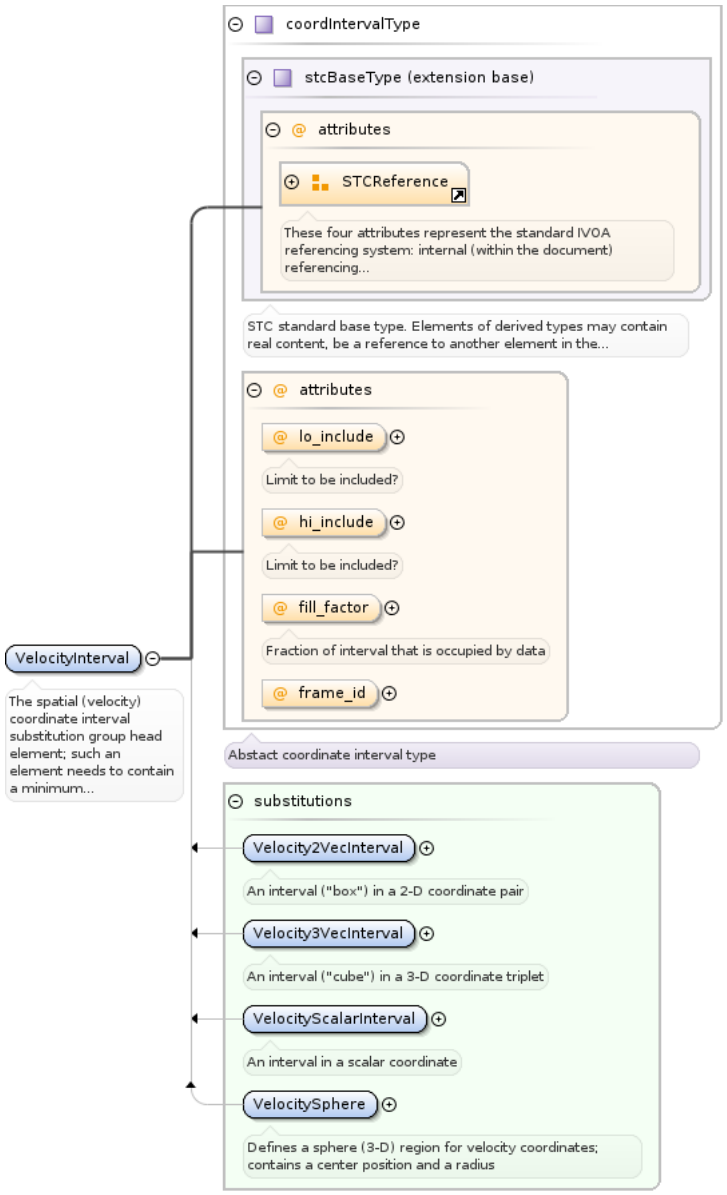
Source

```
<xs:element name="Position3VecInterval" type="pos3VecIntervalType"
 substitutionGroup="PositionInterval" nillable="true">
  <xs:annotation>
    <xs:documentation>An interval ("cube") in a 3-D coordinate triplet</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element VelocityInterval

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The spatial (velocity) coordinate interval substitution group head element; such an element needs to contain a minimum or maximum scalar or vector value, or both; it needs to refer to a coordinate system; boundaries may or may not be inclusive; and it can have a fill factor |

| | |
|---|---|
| Diagram |  |
| Type | coordIntervalType |
| Type hierarchy | • stcBaseType<br>  • coordIntervalType |
| Properties | content: `complex`<br>nillable: `true` |
| `Substitution Group` | • VelocityScalarInterval<br>• Velocity2VecInterval<br>• Velocity3VecInterval<br>• VelocitySphere |
| Used by | Complex Type astroCoordAreaType |

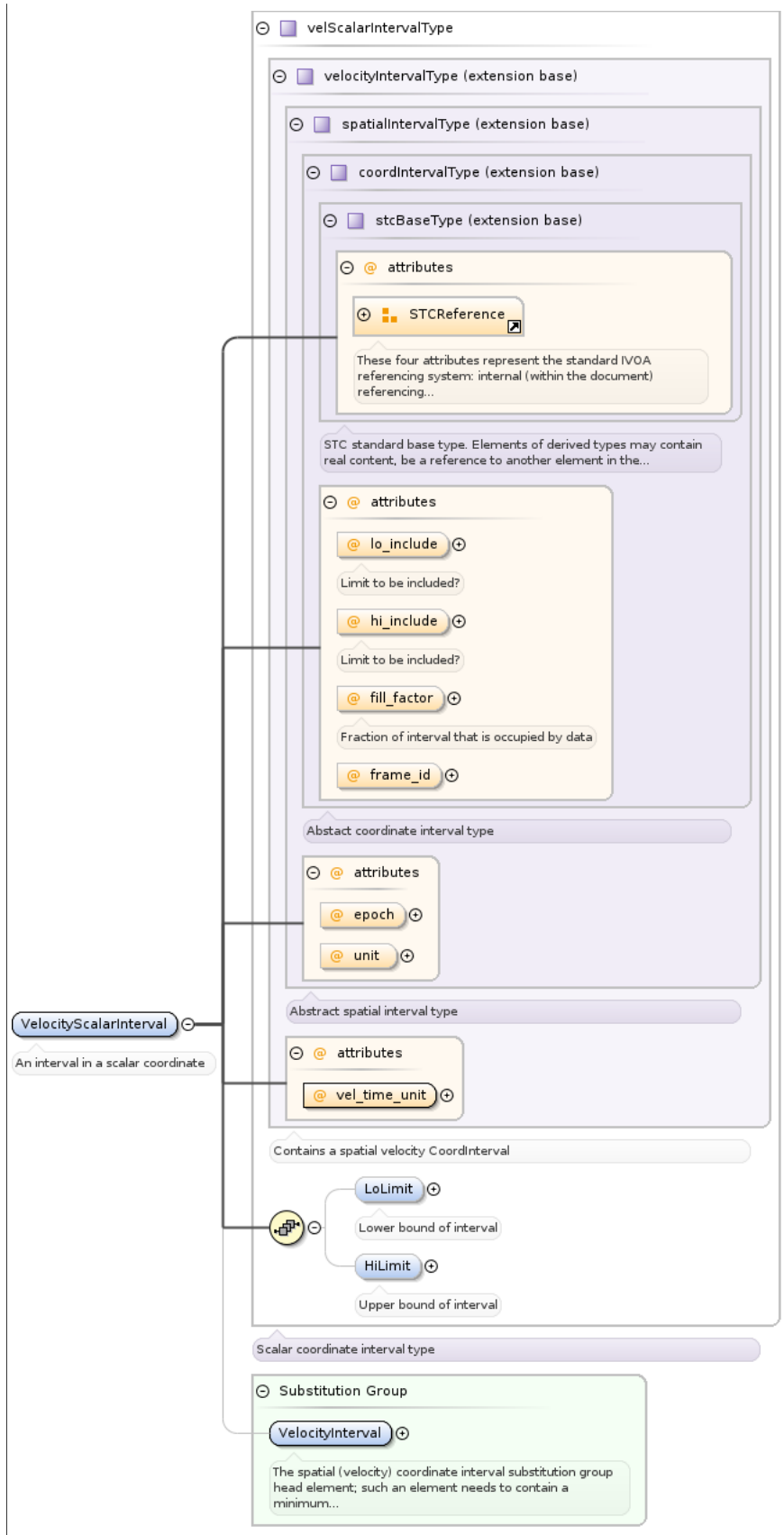
Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | `Fraction of interval that is occupied by data` | | | |

| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **frame_id** | xs:IDREF | | | optional |
| | **hi_include** | xs:boolean | | true | optional |
| | | Limit to be included? | | | |
| | **id** | xs:ID | | | optional |
| | **idref** | xs:IDREF | | | optional |
| | **lo_include** | xs:boolean | | true | optional |
| | | Limit to be included? | | | |
| | **ucd** | xs:string | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |
| Source | <xs:element name="VelocityInterval" type="coordIntervalType" nillable="true"><br><xs:annotation><br><xs:documentation>The spatial (velocity) coordinate interval substitution group head element; such an element needs to contain a minimum or maximum scalar or vector value, or both; it needs to refer to a coordinate system; boundaries may or may not be inclusive; and it can have a fill factor</xs:documentation><br></xs:annotation><br></xs:element> | | | | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | | | | |

## Element VelocityScalarInterval

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | An interval in a scalar coordinate |

| | |
|---|---|
| Diagram |  |
| Type | velScalarIntervalType |
| Type hierarchy | • stcBaseType<br>  • coordIntervalType |

| | |
|---|---|
| | • spatialIntervalType<br>• velocityIntervalType<br>• velScalarIntervalType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • VelocityInterval |
| Model | LoLimit{0,1} , HiLimit{0,1} |
| Children | HiLimit, LoLimit |
| Instance | <VelocityScalarInterval epoch="" fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="" ID_<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br><LoLimit gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit=<br>LoLimit><br><HiLimit gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit=<br>HiLimit><br></VelocityScalarInterval> |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | Fraction of interval that is occupied by data | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | required |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

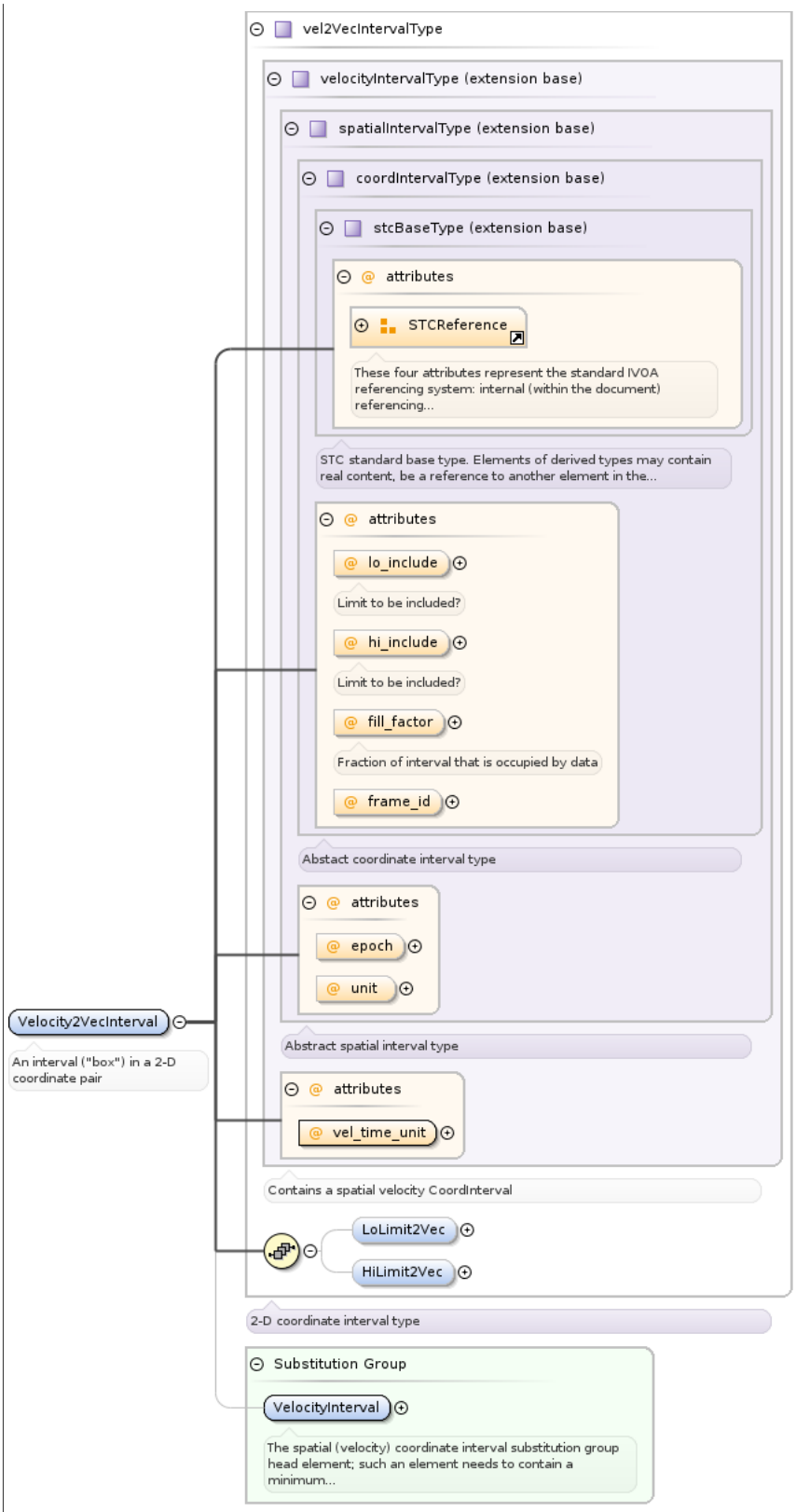
Source

```
<xs:element name="VelocityScalarInterval" type="velScalarIntervalType"
 substitutionGroup="VelocityInterval" nillable="true">
  <xs:annotation>
    <xs:documentation>An interval in a scalar coordinate</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element Velocity2VecInterval

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | An interval ("box") in a 2-D coordinate pair |

| | |
|---|---|
| Diagram |  |
| Type | vel2VecIntervalType |
| Type hierarchy | • stcBaseType<br>• coordIntervalType<br>• spatialIntervalType<br>• velocityIntervalType |

| | |
|---|---|
| | • vel2VecIntervalType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • VelocityInterval |
| Model | LoLimit2Vec{0,1} , HiLimit2Vec{0,1} |
| Children | HiLimit2Vec, LoLimit2Vec |

Instance

```
<Velocity2VecInterval epoch="" fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="" ID_ty
www.ivoa.net/xml/STC/stc-v1.30.xsd">
  <LoLimit2Vec gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd
LoLimit2Vec>
  <HiLimit2Vec gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd
HiLimit2Vec>
</Velocity2VecInterval>
```

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | Fraction of interval that is occupied by data | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | required |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

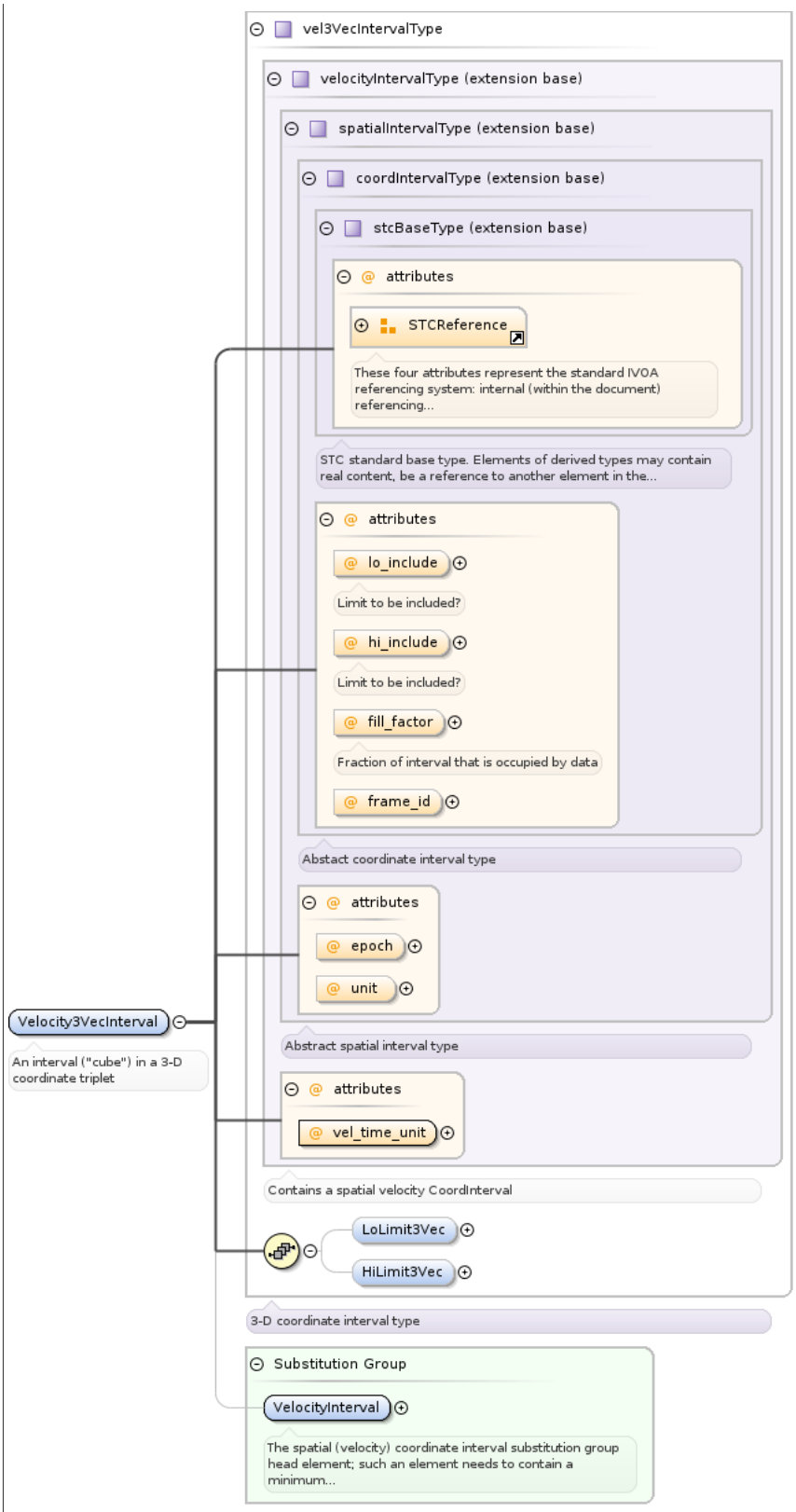
Source

```
<xs:element name="Velocity2VecInterval" type="vel2VecIntervalType"
 substitutionGroup="VelocityInterval" nillable="true">
  <xs:annotation>
    <xs:documentation>An interval ("box") in a 2-D coordinate pair</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element Velocity3VecInterval

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | An interval ("cube") in a 3-D coordinate triplet |

| | |
|---|---|
| Diagram |  |
| Type | vel3VecIntervalType |
| Type hierarchy | • stcBaseType<br>  • coordIntervalType<br>  • spatialIntervalType<br>  • velocityIntervalType |

| | |
|---|---|
| | • vel3VecIntervalType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • VelocityInterval |
| Model | LoLimit3Vec{0,1} , HiLimit3Vec{0,1} |
| Children | HiLimit3Vec, LoLimit3Vec |
| Instance | <Velocity3VecInterval epoch="" fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="" ID_ty<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <LoLimit3Vec gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd<br>LoLimit3Vec><br>  <HiLimit3Vec gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd<br>HiLimit3Vec><br></Velocity3VecInterval> |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | Fraction of interval that is occupied by data | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | required |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

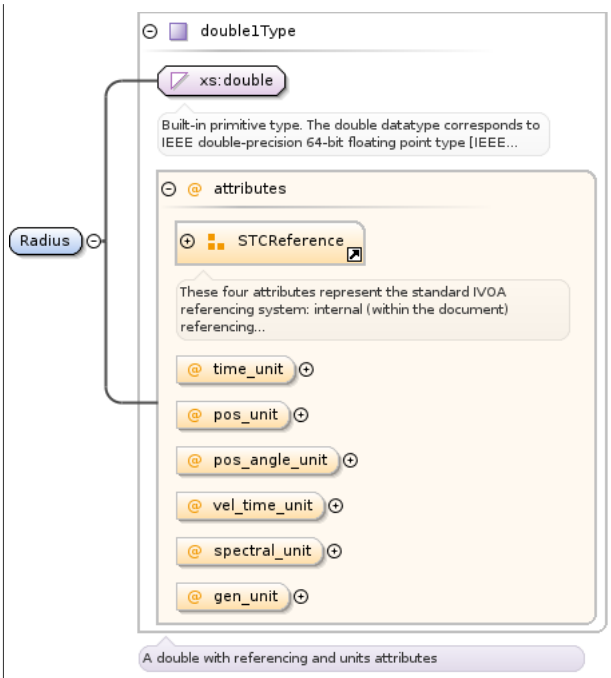
Source

```
<xs:element name="Velocity3VecInterval" type="vel3VecIntervalType"
 substitutionGroup="VelocityInterval" nillable="true">
  <xs:annotation>
    <xs:documentation>An interval ("cube") in a 3-D coordinate triplet</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element sphereType / Radius

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

| | |
|---|---|
| Diagram |  |
| Type | double1Type |
| Properties | content: `complex`<br>nillable: `true` |

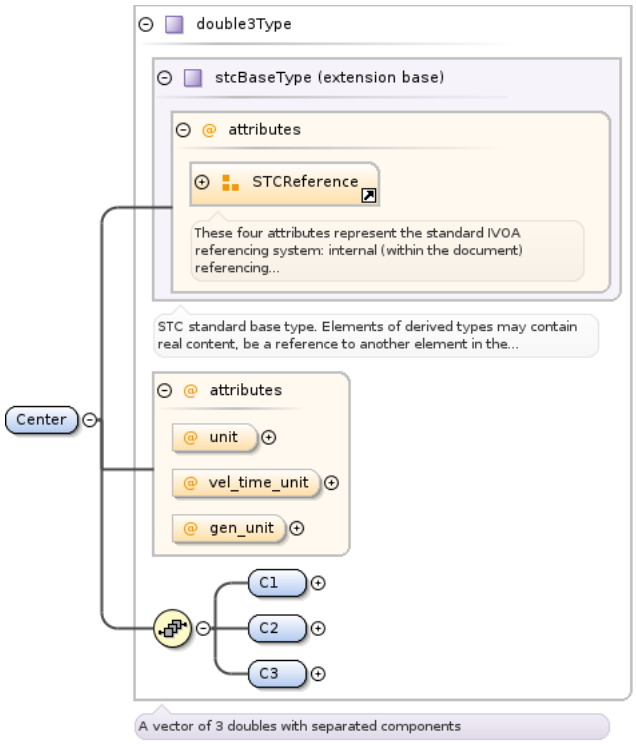
Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **pos_angle_unit** | angleUnitType | | | optional |
| **pos_unit** | posUnitType | | | optional |
| **spectral_unit** | spectralUnitType | | | optional |
| **time_unit** | timeUnitType | | | optional |
| **ucd** | xs:string | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

| | |
|---|---|
| `Source` | `<xs:element name="Radius" type="double1Type" nillable="true"/>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `sphereType / Center`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

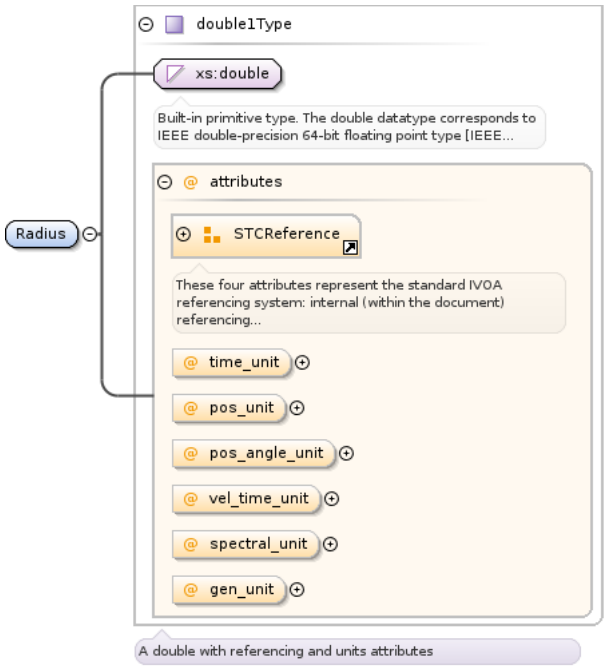
| | |
|---|---|
| Diagram |  |
| Type | double3Type |
| Type hierarchy | • stcBaseType<br>  • double3Type |
| Properties | content: complex<br>nillable: true |
| Model | C1 , C2 , C3 |
| Children | C1, C2, C3 |
| Instance | <Center gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" uni<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <C1 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C1><br>  <C2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C2><br>  <C3 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C3><br></Center> |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

| | |
|---|---|
| Source | <xs:element name="Center" type="double3Type" nillable="true"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `velocitySphereType / Radius`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Diagram |  |
| Type | double1Type |
| Properties | content: `complex`<br>nillable: `true` |

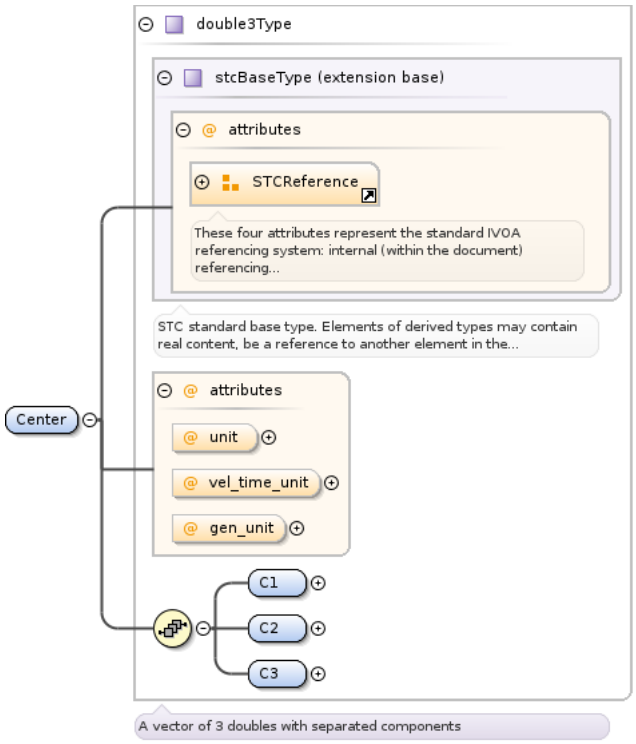
Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **pos_angle_unit** | angleUnitType | | | optional |
| **pos_unit** | posUnitType | | | optional |
| **spectral_unit** | spectralUnitType | | | optional |
| **time_unit** | timeUnitType | | | optional |
| **ucd** | xs:string | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

| | |
|---|---|
| `Source` | `<xs:element name="Radius" type="double1Type" nillable="true"/>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `velocitySphereType / Center`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

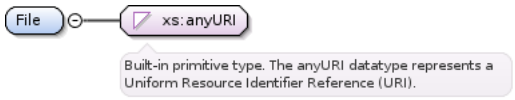
| | |
|---|---|
| Diagram |  |
| Type | double3Type |
| Type hierarchy | • stcBaseType<br>  • double3Type |
| Properties | content: complex<br>nillable: true |
| Model | C1 , C2 , C3 |
| Children | C1, C2, C3 |
| Instance | <Center gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" uni<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <C1 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C1><br>  <C2 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C2><br>  <C3 gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="" sp<br>C3><br></Center> |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

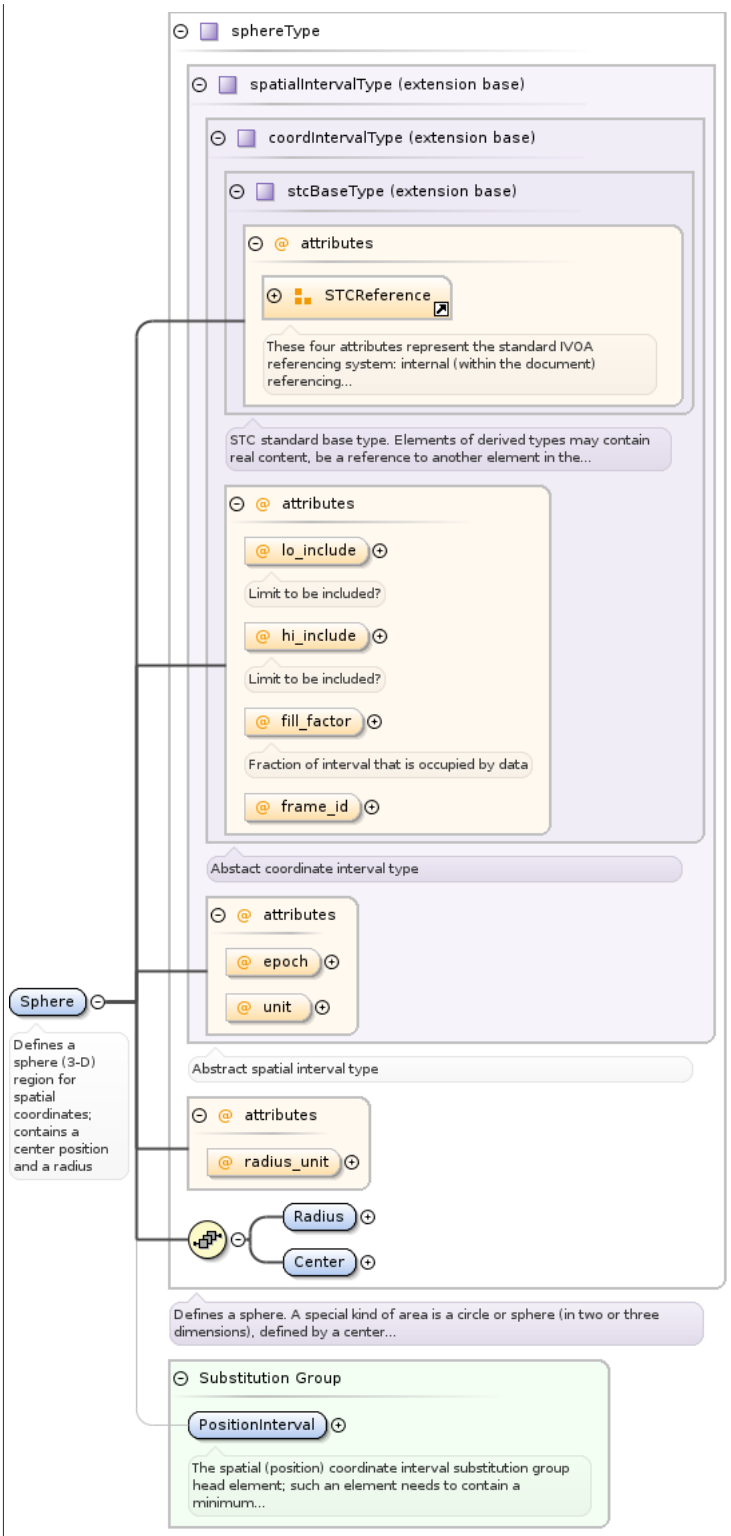
| | |
|---|---|
| Source | <xs:element name="Center" type="double3Type" nillable="true"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element regionFileType / File

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Diagram |  |
| Type | xs:anyURI |
| Properties | content: simple |
| Source | `<xs:element name="File" type="xs:anyURI"/>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element Sphere

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Defines a sphere (3-D) region for spatial coordinates; contains a center position and a radius |

| | |
|---|---|
| Diagram |  |
| Type | sphereType |
| Type hierarchy | • stcBaseType<br>  • coordIntervalType<br>  • spatialIntervalType<br>  • sphereType |
| Properties | content: `complex`<br>nillable: `true` |

| | |
|---|---|
| Substitution Group Affiliation | • PositionInterval |
| Model | Radius , Center |
| Children | Center, Radius |
| Instance | <Sphere epoch="" fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="" ID_type="" idref="" www.ivoa.net/xml/STC/stc-v1.30.xsd"><br><Radius gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit="<br>Radius><br><Center gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" u<br>Center><br></Sphere> |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | Fraction of interval that is occupied by data | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **radius_unit** | posUnitType | | deg | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

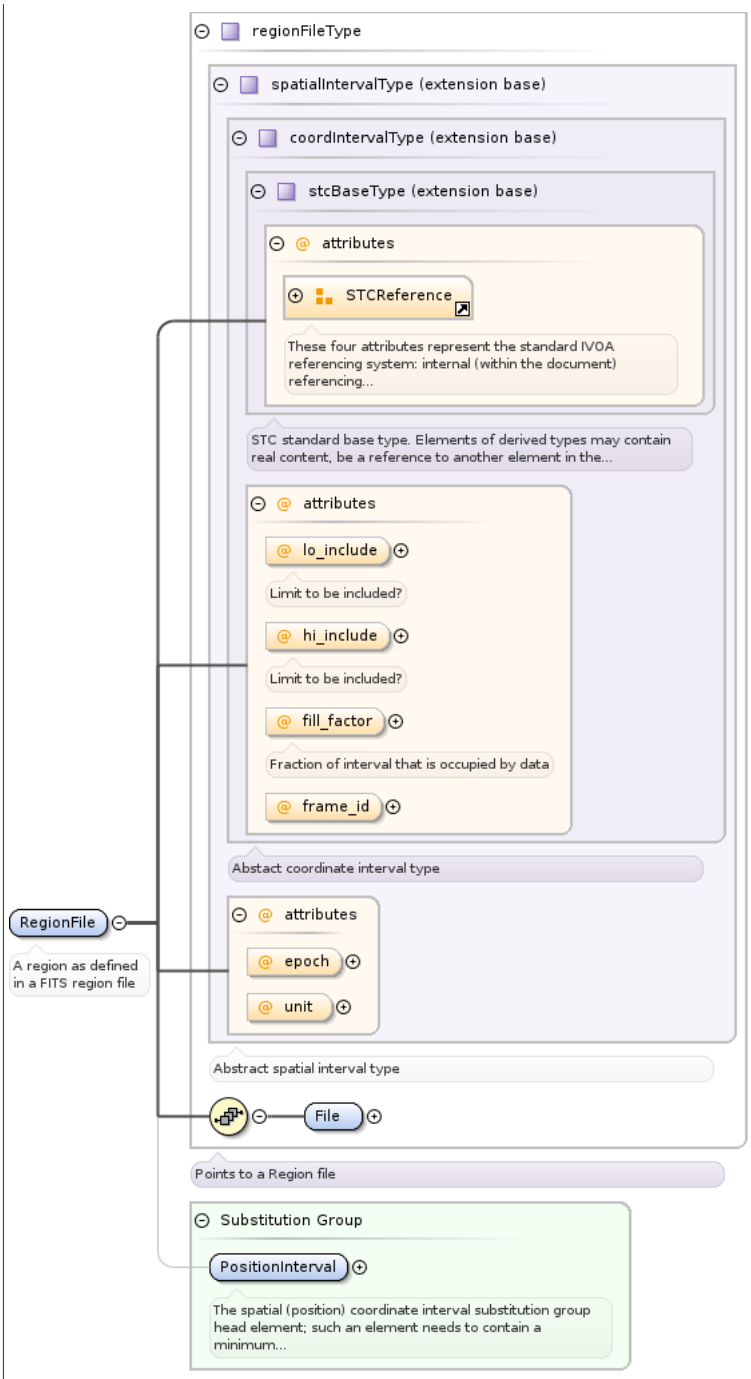
Source

```
<xs:element name="Sphere" type="sphereType" substitutionGroup="PositionInterval"
 nillable="true">
  <xs:annotation>
    <xs:documentation>Defines a sphere (3-D) region for spatial coordinates; contains a
 center position and a radius</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element RegionFile

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | A region as defined in a FITS region file |

| | |
|---|---|
| Diagram |  |
| Type | regionFileType |
| Type hierarchy | • stcBaseType<br>  • coordIntervalType<br>  • spatialIntervalType<br>  • regionFileType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • PositionInterval |
| Model | File |
| Children | File |

| | |
|---|---|
| Instance | <RegionFile epoch="" fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="" ID_type="" idre<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <File>{1,1}</File><br></RegionFile> |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | Fraction of interval that is occupied by data | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

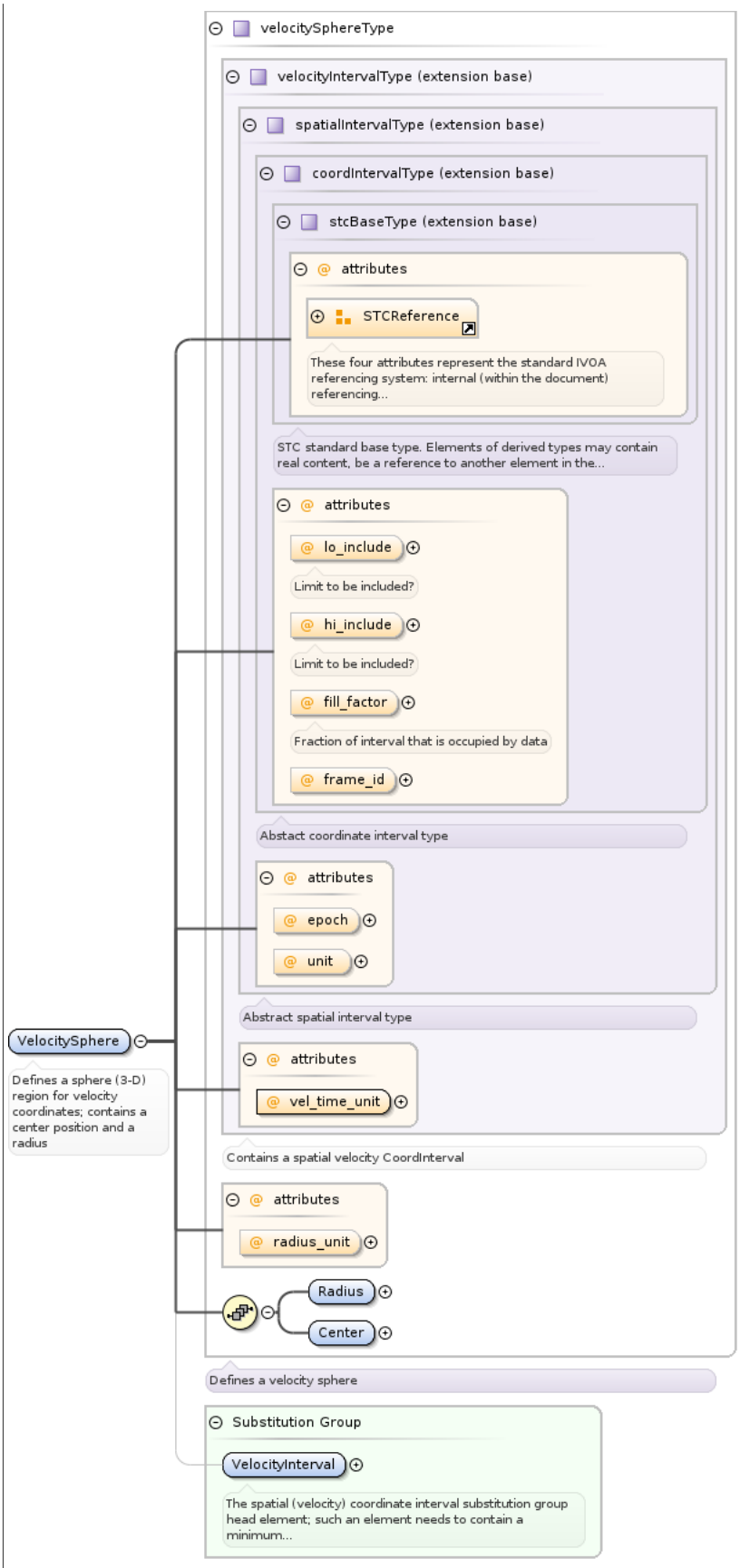
Source

```
<xs:element name="RegionFile" type="regionFileType" substitutionGroup="PositionInterval"
 nillable="true">
  <xs:annotation>
    <xs:documentation>A region as defined in a FITS region file</xs:documentation>
  </xs:annotation>
</xs:element>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Element VelocitySphere

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Defines a sphere (3-D) region for velocity coordinates; contains a center position and a radius |

| | |
|---|---|
| Diagram |  |
| Type | velocitySphereType |
| Type hierarchy | • stcBaseType<br>  • coordIntervalType |

| | |
|---|---|
| | • spatialIntervalType<br>• velocityIntervalType<br>• velocitySphereType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • VelocityInterval |
| Model | Radius , Center |
| Children | Center, Radius |
| Instance | `<VelocitySphere epoch="" fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="" ID_type="" www.ivoa.net/xml/STC/stc-v1.30.xsd"> <Radius gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit=" Radius> <Center gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" u Center> </VelocitySphere>` |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | Fraction of interval that is occupied by data | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **radius_unit** | posUnitType | | deg | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | required |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

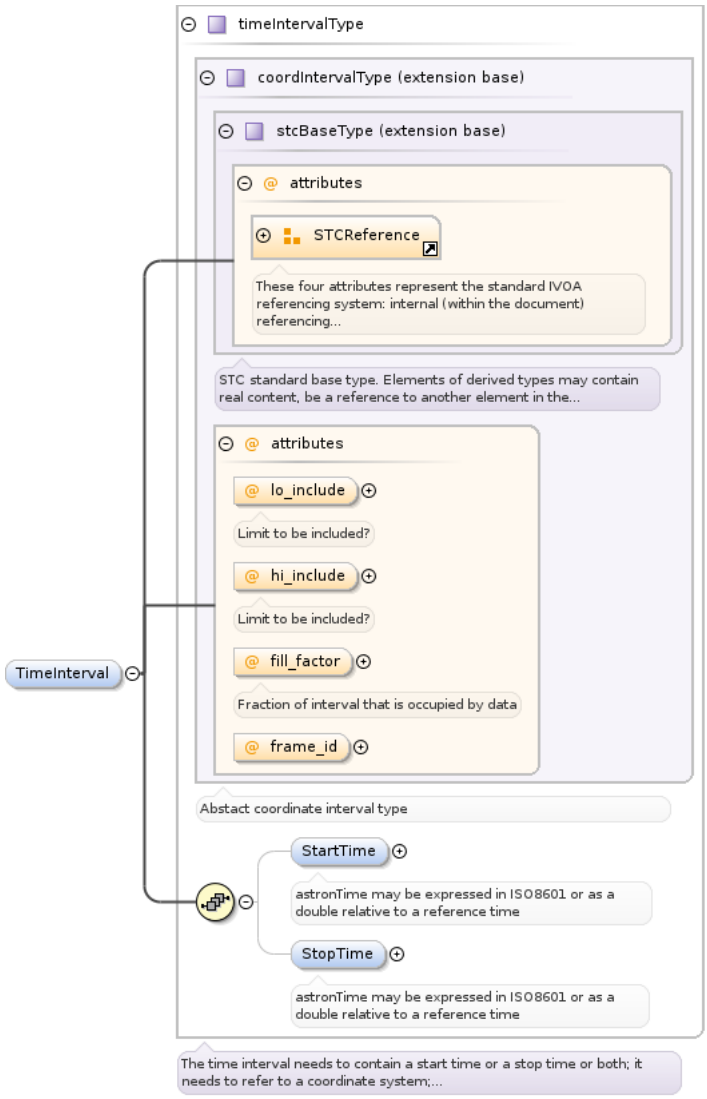
Source

```
<xs:element name="VelocitySphere" type="velocitySphereType"
 substitutionGroup="VelocityInterval" nillable="true">
  <xs:annotation>
    <xs:documentation>Defines a sphere (3-D) region for velocity coordinates; contains a
 center position and a radius</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element astroCoordAreaType / TimeInterval

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

| | |
|---|---|
| Diagram |  |
| Type | timeIntervalType |
| Type hierarchy | • stcBaseType<br>  • coordIntervalType<br>  • timeIntervalType |
| Properties | content: complex<br>minOccurs: 0<br>maxOccurs: unbounded<br>nillable: true |
| Model | StartTime{0,1} , StopTime{0,1} |
| Children | StartTime, StopTime |
| Instance | `<TimeInterval fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="" ID_type="" idref="" ID`<br>`www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <StartTime>{0,1}</StartTime>`<br>`  <StopTime>{0,1}</StopTime>`<br>`</TimeInterval>` |

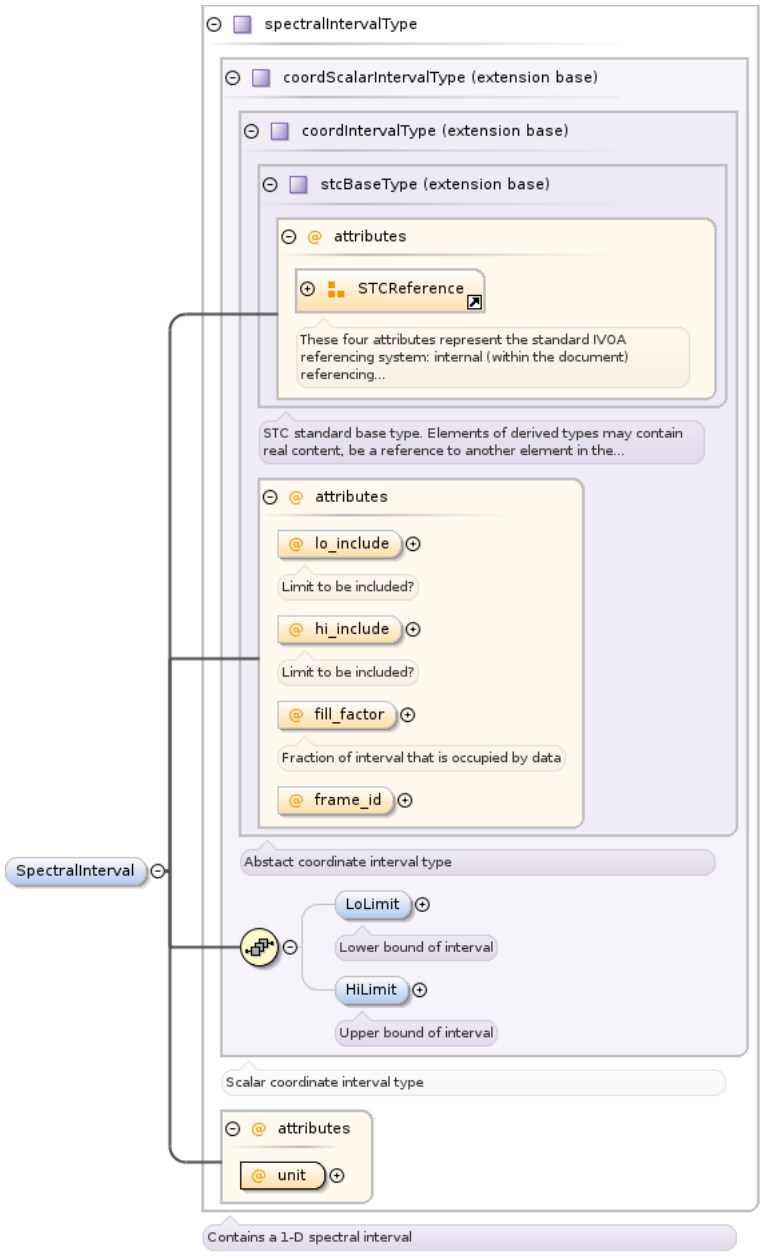
Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | Fraction of interval that is occupied by data | | | |

| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **frame_id** | xs:IDREF | | | optional |
| | **hi_include** | xs:boolean | | true | optional |
| | | `Limit to be included?` | | | |
| | **id** | xs:ID | | | optional |
| | **idref** | xs:IDREF | | | optional |
| | **lo_include** | xs:boolean | | true | optional |
| | | `Limit to be included?` | | | |
| | **ucd** | xs:string | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |
| Source | <xs:element name="TimeInterval" type="timeIntervalType" nillable="true" minOccurs="0" maxOccurs="unbounded"/> | | | | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | | | | |

## Element `astroCoordAreaType / SpectralInterval`

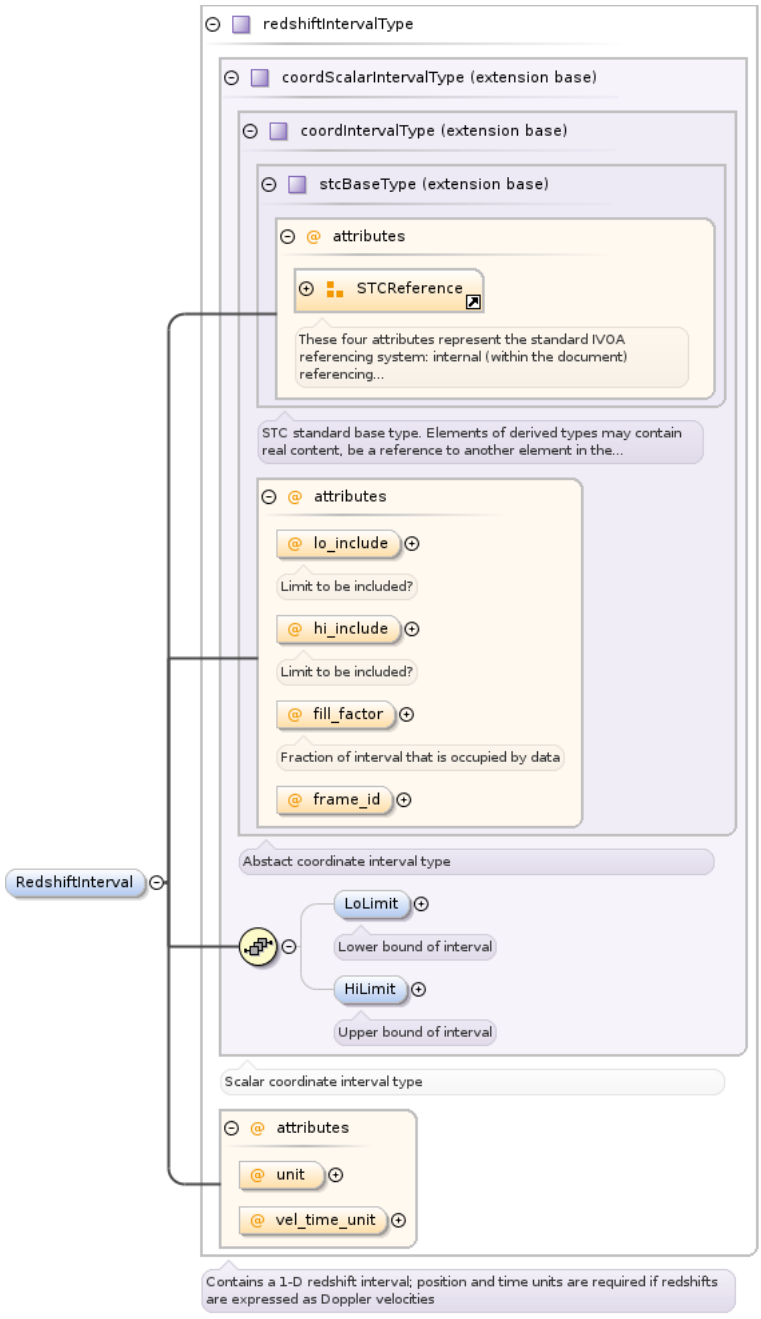
| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

| | |
|---|---|
| Diagram |  |
| Type | spectralIntervalType |
| Type hierarchy | • stcBaseType<br>• coordIntervalType<br>• coordScalarIntervalType<br>• spectralIntervalType |
| Properties | content: `complex`<br>minOccurs: `0`<br>maxOccurs: `unbounded`<br>nillable: `true` |
| Model | LoLimit{0,1} , HiLimit{0,1} |
| Children | HiLimit, LoLimit |
| `Instance` | `<SpectralInterval fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="" ID_type="" idref="`<br>`www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <LoLimit gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit=`<br>`LoLimit>` |

<table>
<tr><td></td><td><pre>  <HiLimit gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit=
HiLimit>
</SpectralInterval></pre></td></tr>
<tr><td>Attributes</td><td>
<table>
<tr><th>QName</th><th>Type</th><th>Fixed</th><th>Default</th><th>Use</th></tr>
<tr><td>IDREF_type</td><td>xs:string</td><td></td><td></td><td>optional</td></tr>
<tr><td>ID_type</td><td>xs:string</td><td></td><td></td><td>optional</td></tr>
<tr><td>fill_factor</td><td>xs:float</td><td></td><td>1.0</td><td>optional</td></tr>
<tr><td></td><td colspan="4">Fraction of interval that is occupied by data</td></tr>
<tr><td>frame_id</td><td>xs:IDREF</td><td></td><td></td><td>optional</td></tr>
<tr><td>hi_include</td><td>xs:boolean</td><td></td><td>true</td><td>optional</td></tr>
<tr><td></td><td colspan="4">Limit to be included?</td></tr>
<tr><td>id</td><td>xs:ID</td><td></td><td></td><td>optional</td></tr>
<tr><td>idref</td><td>xs:IDREF</td><td></td><td></td><td>optional</td></tr>
<tr><td>lo_include</td><td>xs:boolean</td><td></td><td>true</td><td>optional</td></tr>
<tr><td></td><td colspan="4">Limit to be included?</td></tr>
<tr><td>ucd</td><td>xs:string</td><td></td><td></td><td>optional</td></tr>
<tr><td>unit</td><td>spectralUnitType</td><td></td><td></td><td>required</td></tr>
<tr><td>xlink:href</td><td>xs:anyURI</td><td></td><td></td><td>optional</td></tr>
<tr><td>xlink:type</td><td>restriction of xs:NMTOKEN</td><td></td><td>simple</td><td>optional</td></tr>
</table>
</td></tr>
<tr><td>Source</td><td><pre><xs:element name="SpectralInterval" type="spectralIntervalType" nillable="true"
 minOccurs="0" maxOccurs="unbounded"/></pre></td></tr>
<tr><td>Schema location</td><td>http://www.ivoa.net/xml/STC/stc-v1.30.xsd</td></tr>
</table>

## Element astroCoordAreaType / RedshiftInterval

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

| | |
|---|---|
| Diagram |  |
| Type | redshiftIntervalType |
| Type hierarchy | • stcBaseType<br>  • coordIntervalType<br>  • coordScalarIntervalType<br>  • redshiftIntervalType |
| Properties | content: `complex`<br>minOccurs: `0`<br>maxOccurs: `unbounded`<br>nillable: `true` |
| Model | LoLimit{0,1} , HiLimit{0,1} |
| Children | HiLimit, LoLimit |
| `Instance` | `<RedshiftInterval fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="" ID_type="" idref="www.ivoa.net/xml/STC/stc-v1.30.xsd">` |

<table>
<tr><td></td><td>

```
  <LoLimit gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit=
LoLimit>
  <HiLimit gen_unit="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" pos_angle_unit="" pos_unit=
HiLimit>
</RedshiftInterval>
```

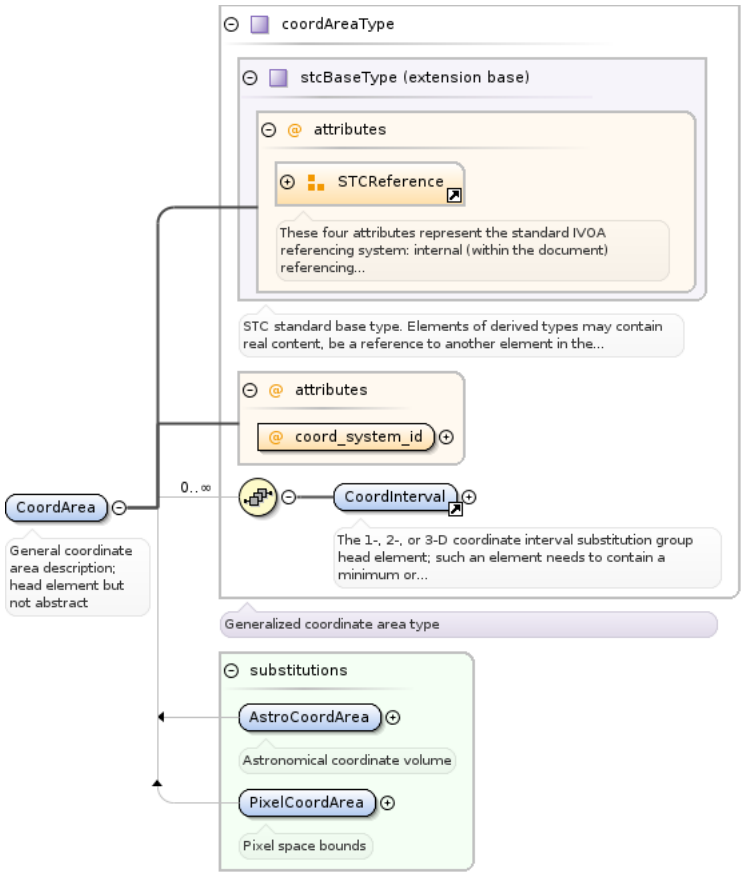
</td></tr>
<tr><td>Attributes</td><td>
<table>
<tr><th>QName</th><th>Type</th><th>Fixed</th><th>Default</th><th>Use</th></tr>
<tr><td>IDREF_type</td><td>xs:string</td><td></td><td></td><td>optional</td></tr>
<tr><td>ID_type</td><td>xs:string</td><td></td><td></td><td>optional</td></tr>
<tr><td>fill_factor</td><td>xs:float</td><td></td><td>1.0</td><td>optional</td></tr>
<tr><td></td><td colspan="4">Fraction of interval that is occupied by data</td></tr>
<tr><td>frame_id</td><td>xs:IDREF</td><td></td><td></td><td>optional</td></tr>
<tr><td>hi_include</td><td>xs:boolean</td><td></td><td>true</td><td>optional</td></tr>
<tr><td></td><td colspan="4">Limit to be included?</td></tr>
<tr><td>id</td><td>xs:ID</td><td></td><td></td><td>optional</td></tr>
<tr><td>idref</td><td>xs:IDREF</td><td></td><td></td><td>optional</td></tr>
<tr><td>lo_include</td><td>xs:boolean</td><td></td><td>true</td><td>optional</td></tr>
<tr><td></td><td colspan="4">Limit to be included?</td></tr>
<tr><td>ucd</td><td>xs:string</td><td></td><td></td><td>optional</td></tr>
<tr><td>unit</td><td>posUnitType</td><td></td><td></td><td>optional</td></tr>
<tr><td>vel_time_unit</td><td>velTimeUnitType</td><td></td><td></td><td>optional</td></tr>
<tr><td>xlink:href</td><td>xs:anyURI</td><td></td><td></td><td>optional</td></tr>
<tr><td>xlink:type</td><td>restriction of xs:NMTOKEN</td><td></td><td>simple</td><td>optional</td></tr>
</table>
</td></tr>
<tr><td>Source</td><td>

```
<xs:element name="RedshiftInterval" type="redshiftIntervalType" nillable="true"
 minOccurs="0" maxOccurs="unbounded"/>
```

</td></tr>
<tr><td>Schema location</td><td>http://www.ivoa.net/xml/STC/stc-v1.30.xsd</td></tr>
</table>

## Element CoordArea

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | General coordinate area description; head element but not abstract |

| | |
|---|---|
| Diagram |  |
| Type | coordAreaType |
| Type hierarchy | • stcBaseType<br>  • coordAreaType |
| Properties | content: complex<br>nillable: true |
| Substitution Group | • AstroCoordArea<br>• PixelCoordArea |
| Used by | Complex Type stcDescriptionType |
| Model | CoordInterval |
| Children | CoordInterval |
| Instance | <CoordArea coord_system_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <CoordInterval fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="" ID_type="" idref="" CoordInterval><br></CoordArea> |

Attributes

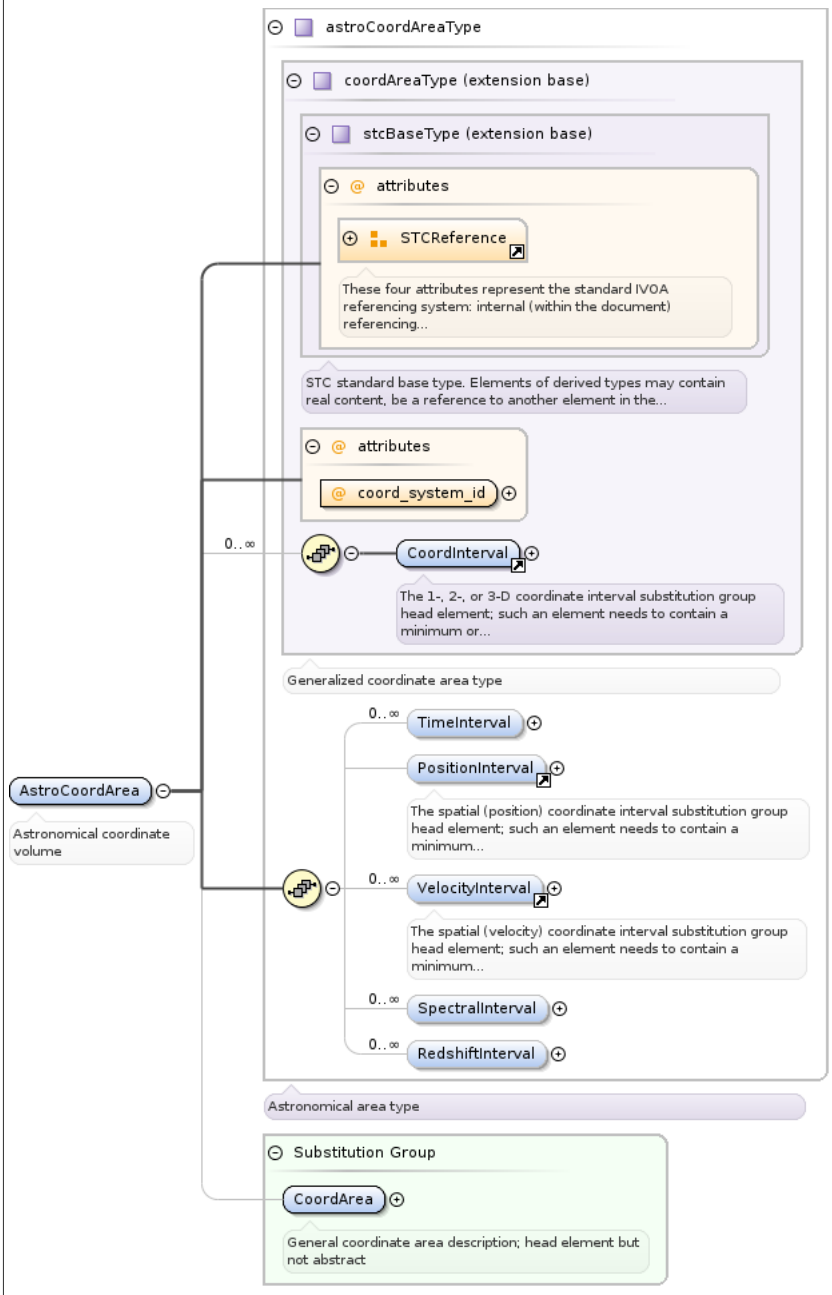
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | required |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:element name="CoordArea" type="coordAreaType" nillable="true">
  <xs:annotation>
```

| | |
|---|---|
| | <xs:documentation>General coordinate area description; head element but not abstract</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element AstroCoordArea

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Astronomical coordinate volume |
| Diagram |  |
| Type | astroCoordAreaType |
| Type hierarchy | • stcBaseType<br>• coordAreaType<br>• astroCoordAreaType |
| Properties | content: complex<br>nillable: true |

| | |
|---|---|
| Substitution Group Affiliation | • CoordArea |
| Used by | Complex Type astroSTCDescriptionType |
| Model | CoordInterval , TimeInterval* , PositionInterval{0,1} , VelocityInterval* , SpectralInterval* , RedshiftInterval* |
| Children | CoordInterval, PositionInterval, RedshiftInterval, SpectralInterval, TimeInterval, VelocityInterval |
| Instance | <AstroCoordArea coord_system_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="sim<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <CoordInterval fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="" ID_type="" idref=""<br>CoordInterval><br>  <TimeInterval fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="" ID_type="" idref=""<br>TimeInterval><br>  <PositionInterval fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="" ID_type="" idref<br>PositionInterval><br>  <VelocityInterval fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="" ID_type="" idref<br>VelocityInterval><br>  <SpectralInterval fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="" ID_type="" idref<br>SpectralInterval><br>  <RedshiftInterval fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="" ID_type="" idref<br>RedshiftInterval><br></AstroCoordArea> |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | required |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

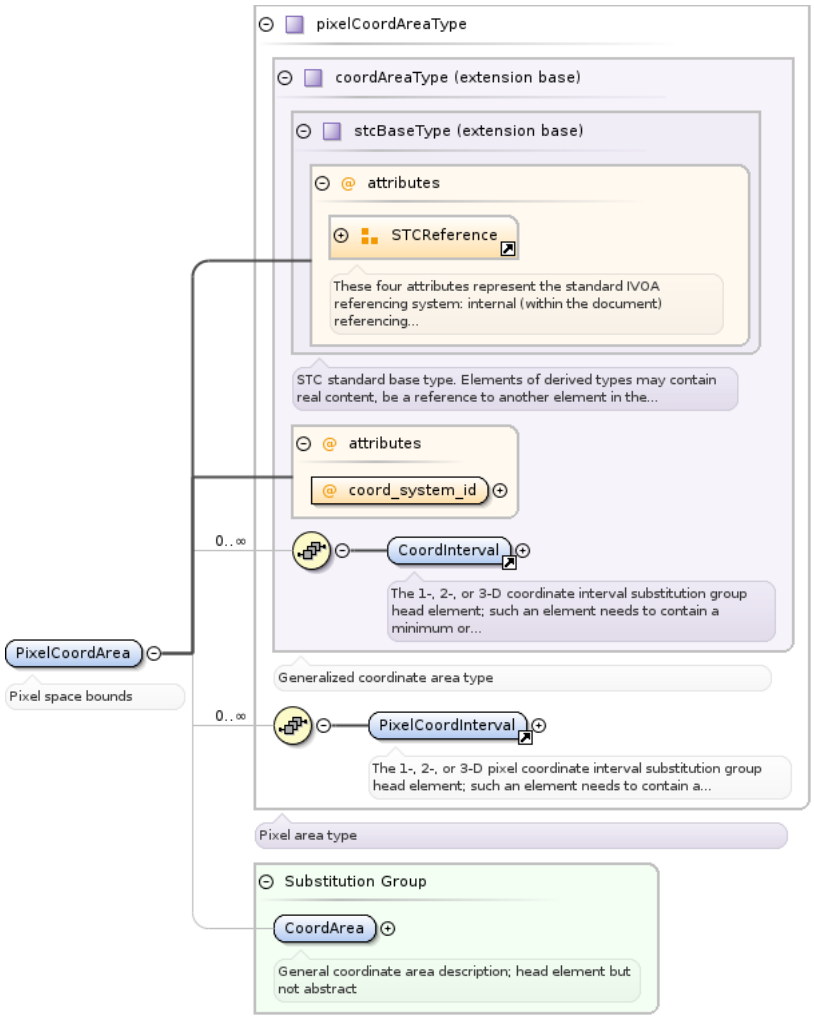
Source

```
<xs:element name="AstroCoordArea" type="astroCoordAreaType" substitutionGroup="CoordArea"
 nillable="true">
  <xs:annotation>
    <xs:documentation>Astronomical coordinate volume</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element PixelCoordArea

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Pixel space bounds |

| | |
|---|---|
| Diagram |  |
| Type | pixelCoordAreaType |
| Type hierarchy | • stcBaseType<br>  • coordAreaType<br>  • pixelCoordAreaType |
| Properties | content: `complex`<br>nillable: `true` |
| `Substitution Group Affiliation` | • CoordArea |
| Used by | Complex Type pixelSpaceType |
| Model | CoordInterval , PixelCoordInterval |
| Children | CoordInterval, PixelCoordInterval |
| `Instance` | `<PixelCoordArea coord_system_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="sim`<br>`www.ivoa.net/xml/STC/stc-v1.30.xsd">`<br>`  <CoordInterval fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="" ID_type="" idref="`<br>`CoordInterval>`<br>`  <PixelCoordInterval fill_factor="1.0" frame_id="" hi_include="true" xlink:href="" id="" ID_type="" idr`<br>`PixelCoordInterval>`<br>`</PixelCoordArea>` |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | required |
| **id** | xs:ID | | | optional |

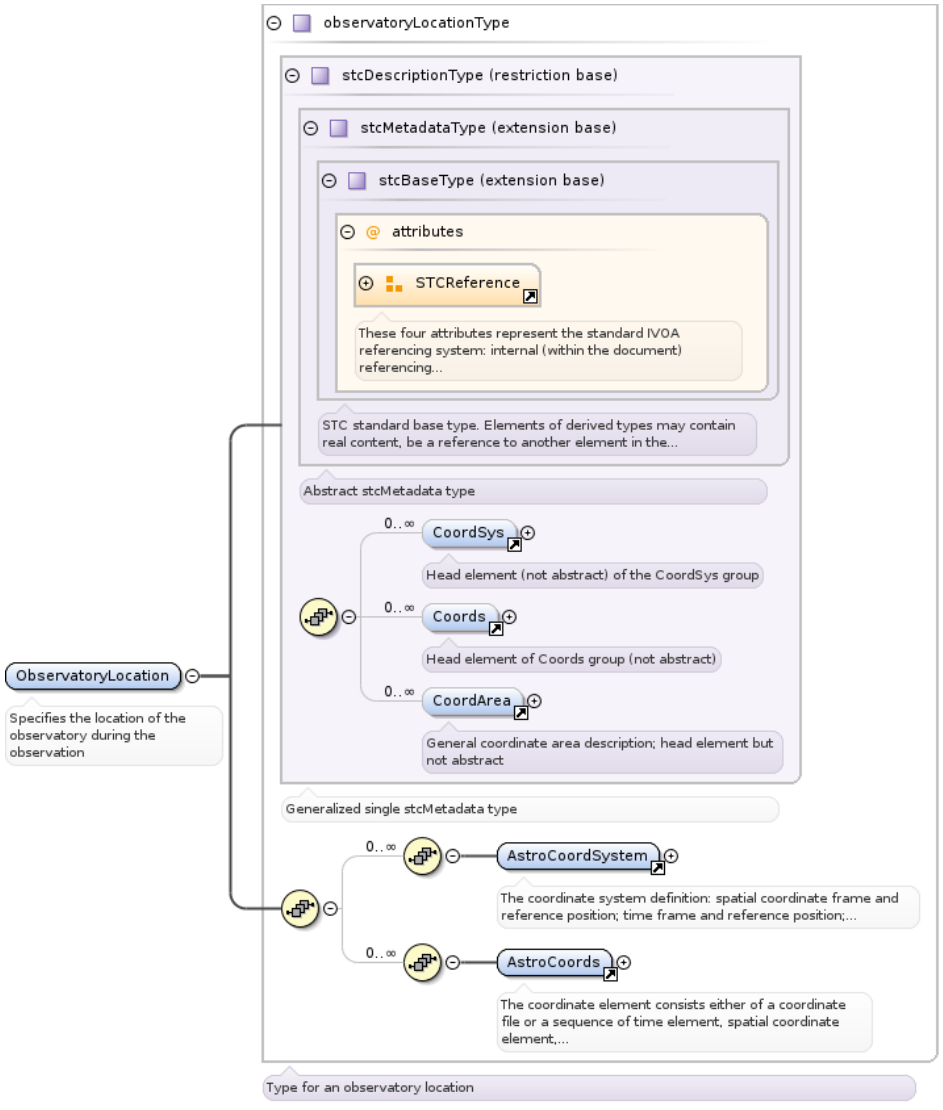
| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **idref** | xs:IDREF | | | optional |
| | **ucd** | xs:string | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:element name="PixelCoordArea" type="pixelCoordAreaType" substitutionGroup="CoordArea"
 nillable="true">
  <xs:annotation>
    <xs:documentation>Pixel space bounds</xs:documentation>
  </xs:annotation>
</xs:element>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Element obsDataLocationType / ObservatoryLocation

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Specifies the location of the observatory during the observation |
| Diagram |  |
| Type | observatoryLocationType |
| Type hierarchy | • stcBaseType<br>  • stcMetadataType<br>  • stcDescriptionType |

| | |
|---|---|
| | • observatoryLocationType |
| Properties | content: complex<br>nillable: true |
| Model | AstroCoordSystem , AstroCoords |
| Children | AstroCoordSystem, AstroCoords |
| Instance | <ObservatoryLocation xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" xm<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <AstroCoordSystem xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="">{1,<br>AstroCoordSystem><br>  <AstroCoords coord_system_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simp<br>AstroCoords><br></ObservatoryLocation> |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

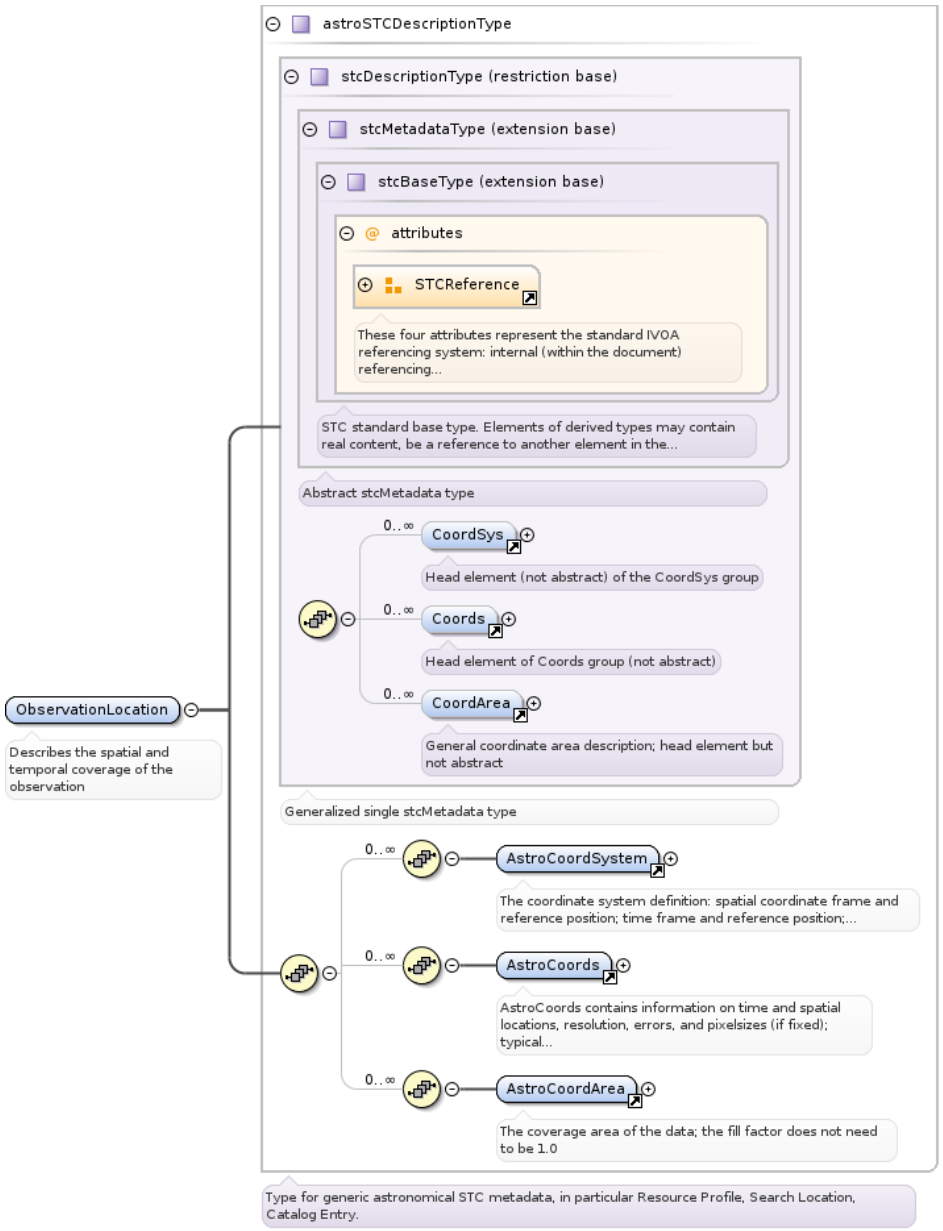
Source

```
<xs:element name="ObservatoryLocation" type="observatoryLocationType" nillable="true">
  <xs:annotation>
    <xs:documentation>Specifies the location of the observatory during the observation</
xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

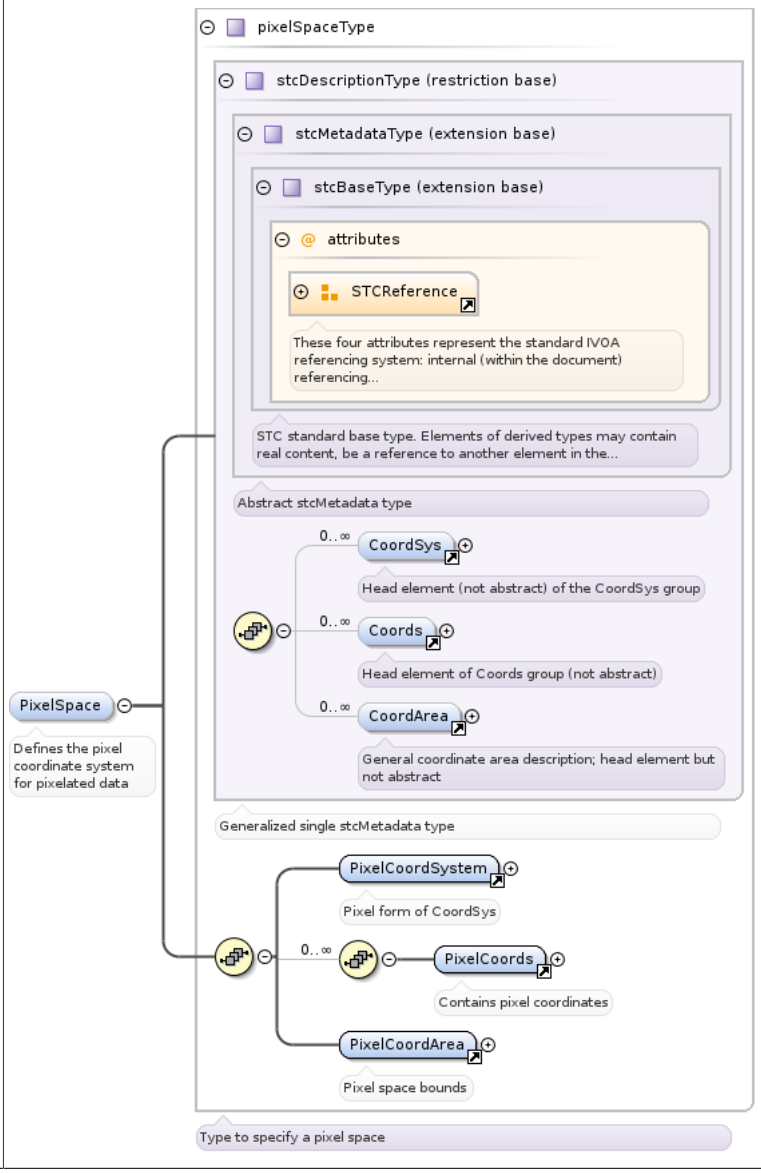
## Element obsDataLocationType / ObservationLocation

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Describes the spatial and temporal coverage of the observation |

| | |
|---|---|
| Diagram |  |
| Type | astroSTCDescriptionType |
| Type hierarchy | • stcBaseType<br>  • stcMetadataType<br>  • stcDescriptionType<br>  • astroSTCDescriptionType |
| Properties | content: complex<br>nillable: true |
| Model | AstroCoordSystem , AstroCoords , AstroCoordArea |
| Children | AstroCoordArea, AstroCoordSystem, AstroCoords |
| Instance | <ObservationLocation xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" xm<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <AstroCoordSystem xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="">{1,<br>AstroCoordSystem><br>  <AstroCoords coord_system_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simp<br>AstroCoords><br>  <AstroCoordArea coord_system_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="s<br>AstroCoordArea><br></ObservationLocation> |

| | | | | | |
|---|---|---|---|---|---|
| Attributes | **QName** | **Type** | **Fixed** | **Default** | **Use** |
| | **IDREF_type** | xs:string | | | optional |
| | **ID_type** | xs:string | | | optional |
| | **id** | xs:ID | | | optional |
| | **idref** | xs:IDREF | | | optional |
| | **ucd** | xs:string | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |
| Source | <xs:element name="ObservationLocation" type="astroSTCDescriptionType" nillable="true"><br><xs:annotation><br><xs:documentation>Describes the spatial and temporal coverage of the observation</xs:documentation><br></xs:annotation><br></xs:element> | | | | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | | | | |

## Element obsDataLocationType / PixelSpace

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Defines the pixel coordinate system for pixelated data |
| Diagram |  |

| | |
|---|---|
| Type | pixelSpaceType |
| Type hierarchy | • stcBaseType<br>  • stcMetadataType<br>  • stcDescriptionType<br>  • pixelSpaceType |
| Properties | content: complex<br>minOccurs: 0<br>nillable: true |
| Model | PixelCoordSystem , PixelCoords , PixelCoordArea |
| Children | PixelCoordArea, PixelCoordSystem, PixelCoords |
| Instance | <PixelSpace xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" xmlns="http<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <PixelCoordSystem xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="">{1,<br>PixelCoordSystem><br>  <PixelCoords coord_system_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simp<br>PixelCoords><br>  <PixelCoordArea coord_system_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="s<br>PixelCoordArea><br></PixelSpace> |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

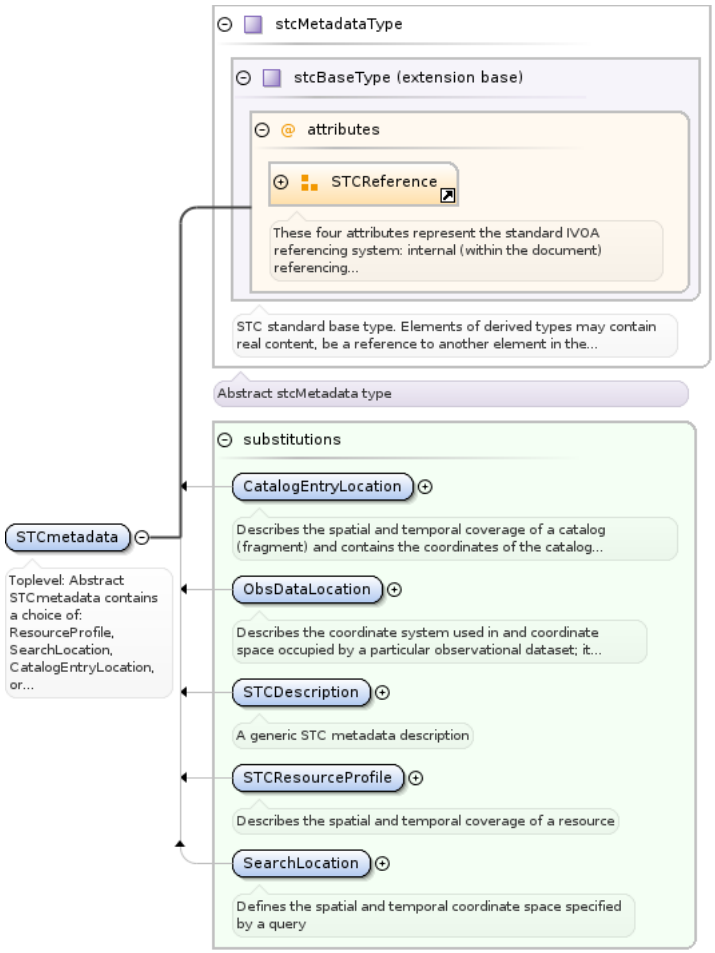
Source

```
<xs:element name="PixelSpace" type="pixelSpaceType" nillable="true" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Defines the pixel coordinate system for pixelated data</
xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element STCmetadata

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Toplevel: Abstract STCmetadata contains a choice of: ResourceProfile, SearchLocation, CatalogEntryLocation, or ObservationLocation plus ObservatoryLocation elements |

| | |
|---|---|
| Diagram |  |
| Type | stcMetadataType |
| Type hierarchy | • stcBaseType<br>  • stcMetadataType |
| Properties | content: `complex`<br>nillable: `true` |
| `Substitution Group` | • STCDescription<br>• STCResourceProfile<br>• SearchLocation<br>• CatalogEntryLocation<br>• ObsDataLocation |

Attributes

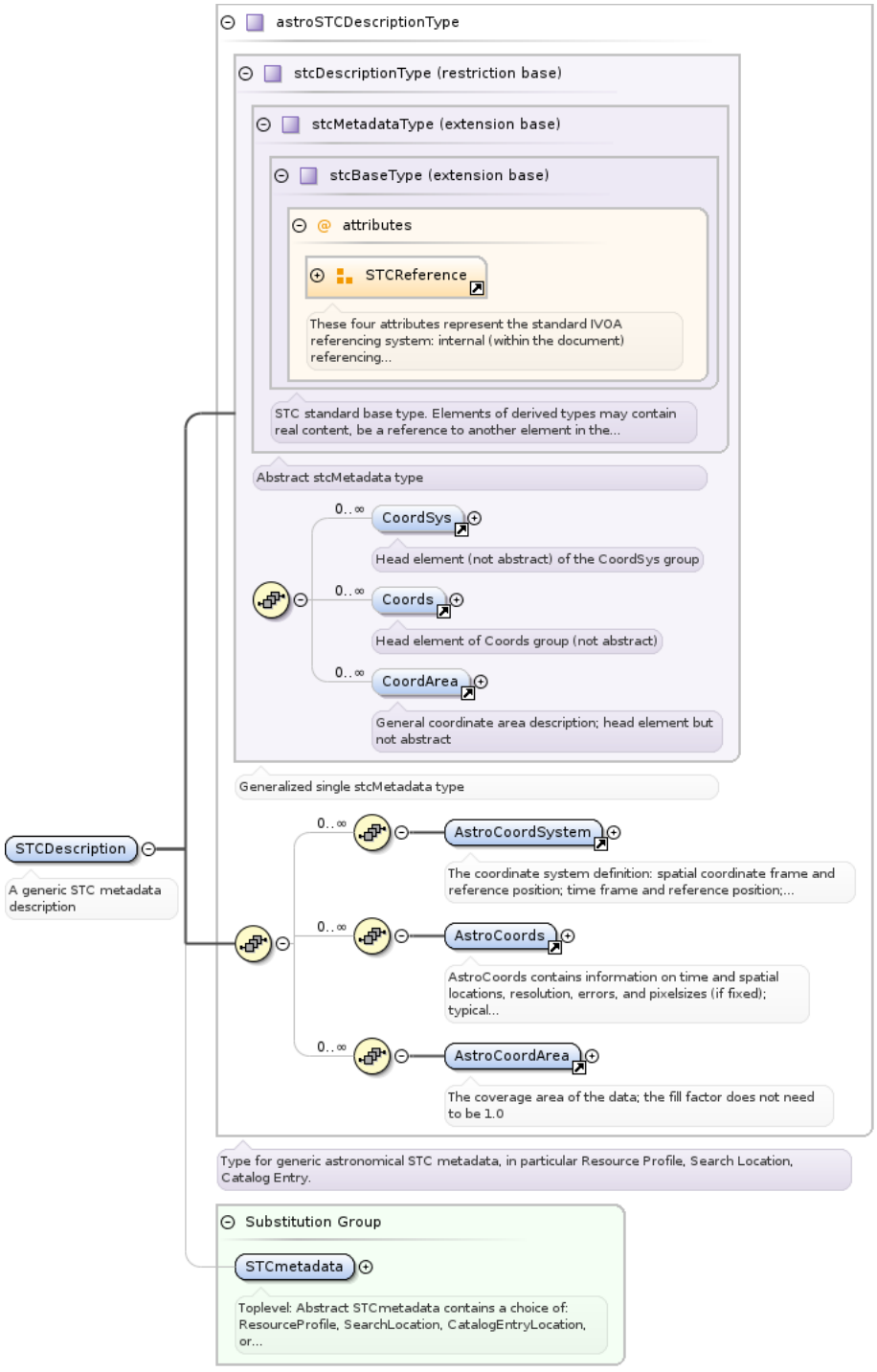
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

`Source`

```
<xs:element name="STCmetadata" type="stcMetadataType" nillable="true">
  <xs:annotation>
    <xs:documentation>Toplevel: Abstract STCmetadata contains a choice of:
 ResourceProfile, SearchLocation, CatalogEntryLocation, or ObservationLocation plus
 ObservatoryLocation elements</xs:documentation>
```

| | |
|---|---|
| | `</xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element `STCDescription`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `A generic STC metadata description` |
| Diagram |  |
| Type | astroSTCDescriptionType |
| Type hierarchy | • stcBaseType<br>  • stcMetadataType<br>  • stcDescriptionType |

| | |
|---|---|
| | • astroSTCDescriptionType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • STCmetadata |
| Model | AstroCoordSystem , AstroCoords , AstroCoordArea |
| Children | AstroCoordArea, AstroCoordSystem, AstroCoords |
| Instance | <STCDescription xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" xmlns="<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <AstroCoordSystem xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="">{1,<br>AstroCoordSystem><br>  <AstroCoords coord_system_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simp<br>AstroCoords><br>  <AstroCoordArea coord_system_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="s<br>AstroCoordArea><br></STCDescription> |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

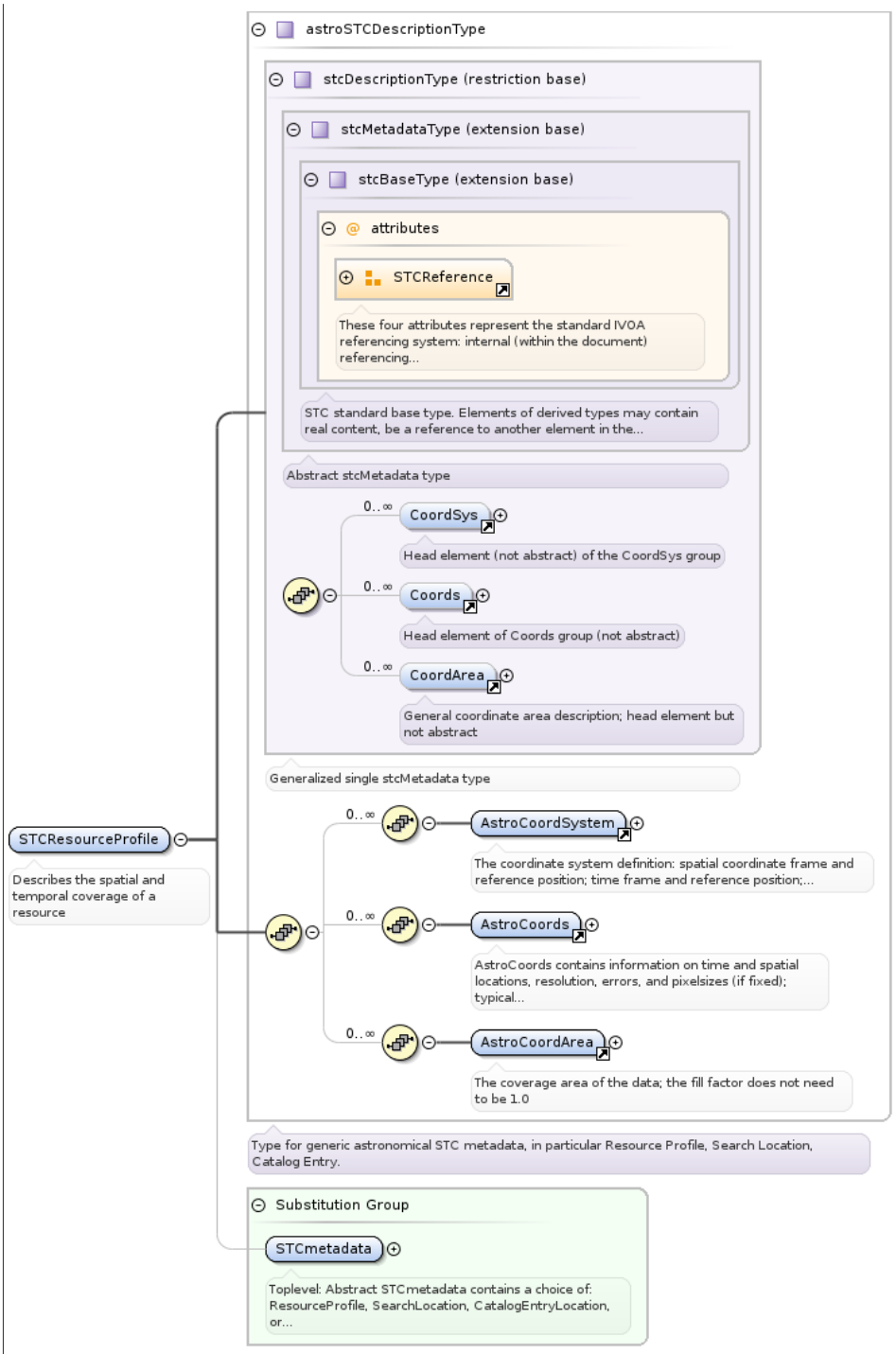
Source

```
<xs:element name="STCDescription" type="astroSTCDescriptionType"
 substitutionGroup="STCmetadata" nillable="true">
  <xs:annotation>
    <xs:documentation>A generic STC metadata description</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element STCResourceProfile

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Describes the spatial and temporal coverage of a resource |

| | |
|---|---|
| Diagram |  |
| Type | astroSTCDescriptionType |
| Type hierarchy | • stcBaseType<br>  • stcMetadataType<br>  • stcDescriptionType<br>  • astroSTCDescriptionType |
| Properties | content: `complex`<br>nillable: `true` |
| `Substitution Group Affiliation` | • STCmetadata |
| Model | AstroCoordSystem , AstroCoords , AstroCoordArea |

| | |
|---|---|
| Children | AstroCoordArea, AstroCoordSystem, AstroCoords |
| Instance | <STCResourceProfile xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" xml<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <AstroCoordSystem xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="">{1,<br>AstroCoordSystem><br>  <AstroCoords coord_system_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simp<br>AstroCoords><br>  <AstroCoordArea coord_system_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="s<br>AstroCoordArea><br></STCResourceProfile> |

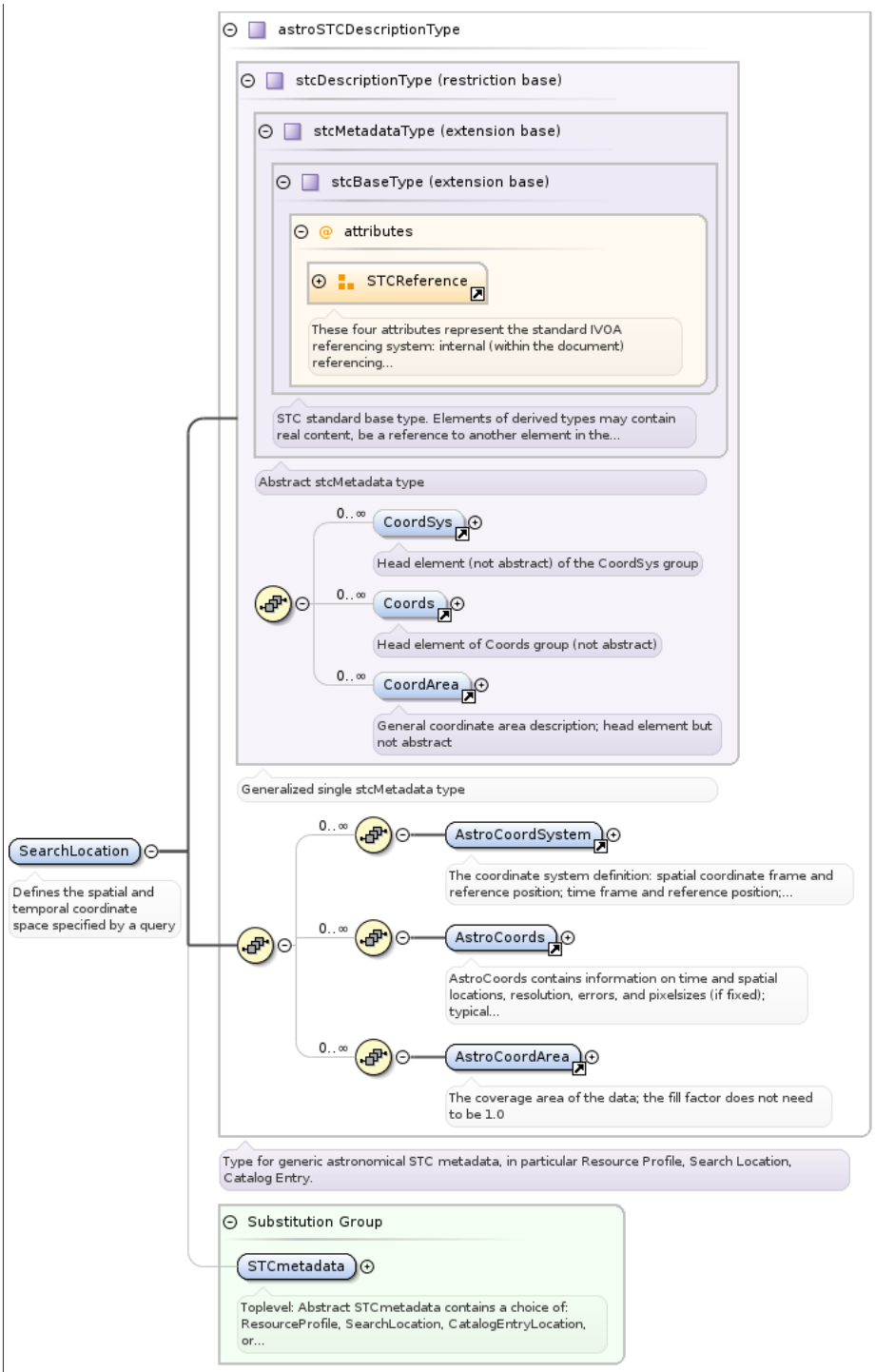
Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

| | |
|---|---|
| Source | <xs:element name="STCResourceProfile" type="astroSTCDescriptionType"<br> substitutionGroup="STCmetadata" nillable="true"><br>  <xs:annotation><br>  <xs:documentation>Describes the spatial and temporal coverage of a resource</<br>xs:documentation><br>  </xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element SearchLocation

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Defines the spatial and temporal coordinate space specified by a query |

| | |
|---|---|
| Diagram |  |
| Type | astroSTCDescriptionType |
| Type hierarchy | • stcBaseType<br>  • stcMetadataType<br>  • stcDescriptionType<br>  • astroSTCDescriptionType |
| Properties | content: `complex`<br>nillable: `true` |
| `Substitution Group Affiliation` | • STCmetadata |
| Model | AstroCoordSystem , AstroCoords , AstroCoordArea |

| | |
|---|---|
| Children | AstroCoordArea, AstroCoordSystem, AstroCoords |
| Instance | <SearchLocation xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" xmlns="<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <AstroCoordSystem xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="">{1,<br>AstroCoordSystem><br>  <AstroCoords coord_system_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simp<br>AstroCoords><br>  <AstroCoordArea coord_system_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="s<br>AstroCoordArea><br></SearchLocation> |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

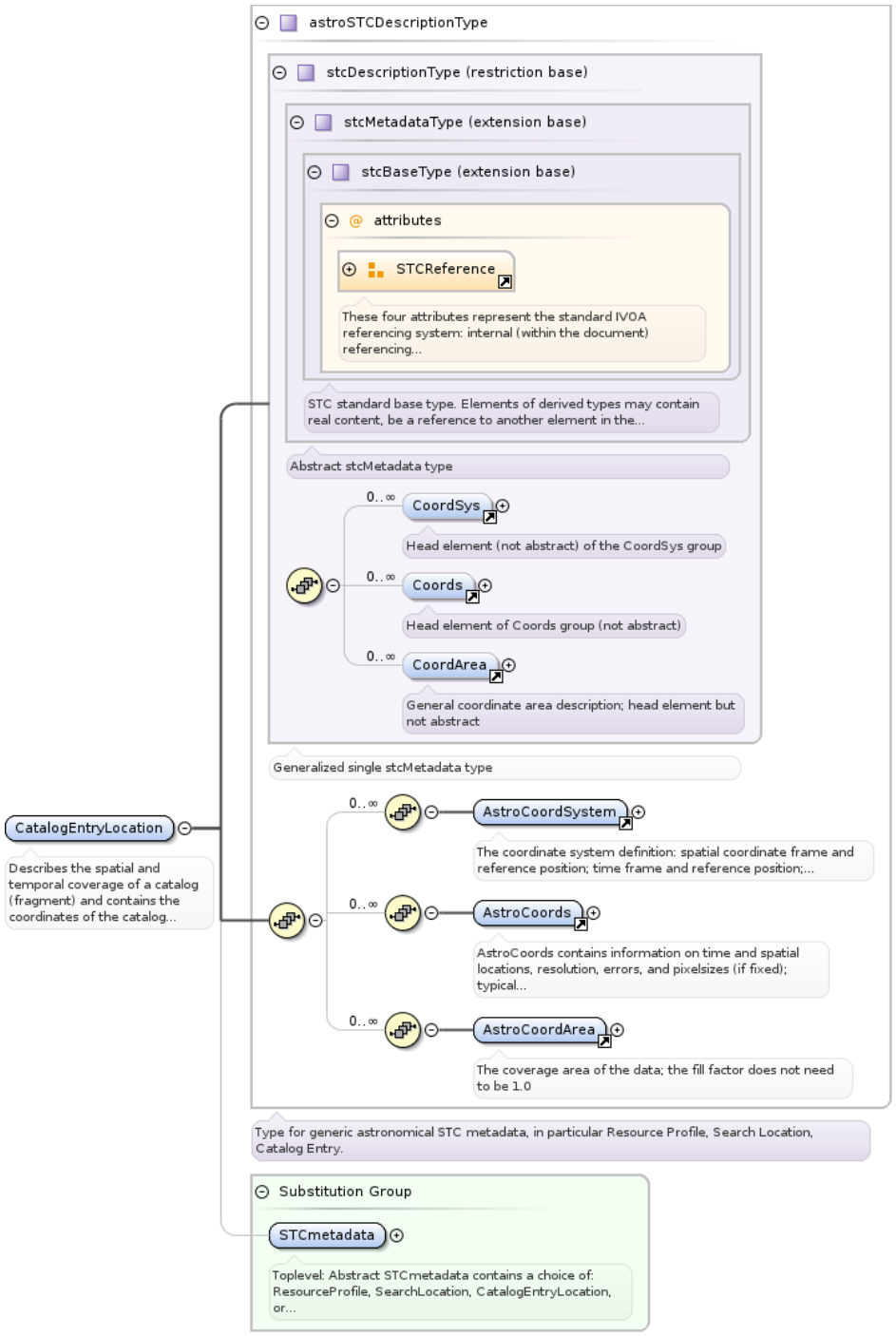
Source

```
<xs:element name="SearchLocation" type="astroSTCDescriptionType"
 substitutionGroup="STCmetadata" nillable="true">
  <xs:annotation>
    <xs:documentation>Defines the spatial and temporal coordinate space specified by a
 query</xs:documentation>
  </xs:annotation>
</xs:element>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Element CatalogEntryLocation

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Describes the spatial and temporal coverage of a catalog (fragment) and contains the coordinates of the catalog entries; multiple coordinate systems are allowed |

| | |
|---|---|
| Diagram |  |
| Type | astroSTCDescriptionType |
| Type hierarchy | • stcBaseType<br>  • stcMetadataType<br>  • stcDescriptionType<br>  • astroSTCDescriptionType |
| Properties | content: `complex`<br>nillable: `true` |
| `Substitution Group Affiliation` | • STCmetadata |
| Model | AstroCoordSystem , AstroCoords , AstroCoordArea |
| Children | AstroCoordArea, AstroCoordSystem, AstroCoords |

| | |
|---|---|
| Instance | <CatalogEntryLocation xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" x<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <AstroCoordSystem xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="">{1,<br>AstroCoordSystem><br>  <AstroCoords coord_system_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simp<br>AstroCoords><br>  <AstroCoordArea coord_system_id="" xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="s<br>AstroCoordArea><br></CatalogEntryLocation> |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

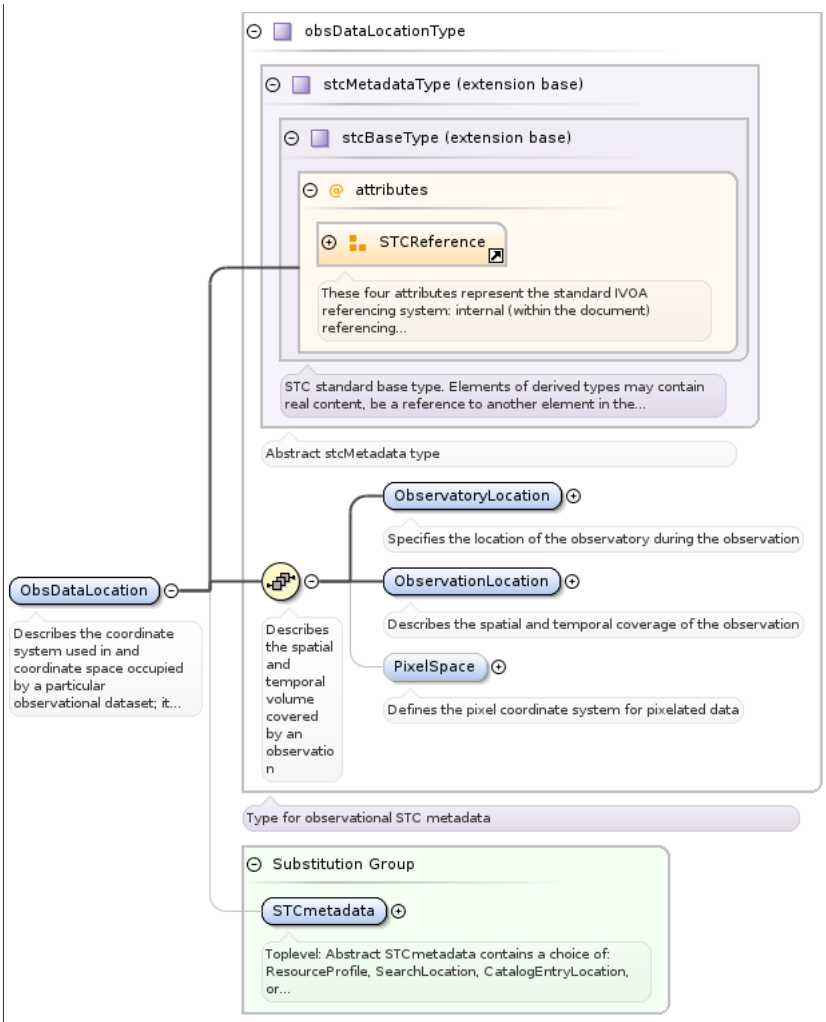
Source

```
<xs:element name="CatalogEntryLocation" type="astroSTCDescriptionType"
 substitutionGroup="STCmetadata" nillable="true">
  <xs:annotation>
    <xs:documentation>Describes the spatial and temporal coverage of a catalog (fragment)
 and contains the coordinates of the catalog entries; multiple coordinate systems are
 allowed</xs:documentation>
  </xs:annotation>
</xs:element>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Element ObsDataLocation

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Describes the coordinate system used in and coordinate space occupied by a particular observational dataset; it contains an observation location, an observatory location, and optionally a pixel coordinate system |

| | |
|---|---|
| Diagram |  |
| Type | obsDataLocationType |
| Type hierarchy | • stcBaseType<br>  • stcMetadataType<br>  • obsDataLocationType |
| Properties | content: complex<br>nillable: true |
| Substitution Group Affiliation | • STCmetadata |
| Model | ObservatoryLocation , ObservationLocation , PixelSpace{0,1} |
| Children | ObservationLocation, ObservatoryLocation, PixelSpace |
| Instance | <ObsDataLocation xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="" xmlns=<br>www.ivoa.net/xml/STC/stc-v1.30.xsd"><br>  <ObservatoryLocation xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="">...<br>ObservatoryLocation><br>  <ObservationLocation xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="">...<br>ObservationLocation><br>  <PixelSpace xlink:href="" id="" ID_type="" idref="" IDREF_type="" xlink:type="simple" ucd="">{0,1}</<br>PixelSpace><br></ObsDataLocation> |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |

| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **ucd** | xs:string | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:element name="ObsDataLocation" type="obsDataLocationType"
 substitutionGroup="STCmetadata" nillable="true">
  <xs:annotation>
    <xs:documentation>Describes the coordinate system used in and coordinate space
 occupied by a particular observational dataset; it contains an observation location, an
 observatory location, and optionally a pixel coordinate system</xs:documentation>
  </xs:annotation>
</xs:element>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

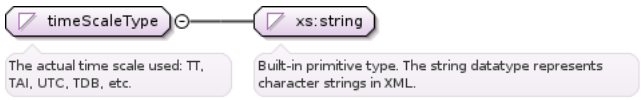
# Simple Type(s)

## Simple Type `timeScaleType`

Namespace: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

Annotations: The actual time scale used: TT, TAI, UTC, TDB, etc.

Diagram




Type: restriction of xs:string

Facets

| | | |
|---|---|---|
| enumeration | TT | Terrestrial Time; the basis for ephemerides |
| enumeration | TDT | Obsolete synonym for TT |
| enumeration | ET | Ephemeris Time; predecessor of, and continuous with, TT |
| enumeration | TDB | Barycentric Dynamic Time:the independent variable in planetay ephemerides; time at the solar system barycenter synchronous with TT on an annual basis; sometimes called TEB |
| enumeration | TEB | Barycentric Ephemeris Time: time at the solar system barycenter synchronous with TT on an annual basis; a deprecated synonym of TDB. |
| enumeration | TCG | Terrestrial Coordinate Time |
| enumeration | TCB | Barycentric Coordinate Time; runs slower than TDB but is consistent with physical constants |
| enumeration | TAI | International Atomic Time; runs 32.184 s behind TT |
| enumeration | IAT | Synonym for TAI |
| enumeration | UTC | Coordinated Universal Time; currently (2006) runs 33 leapseconds behind TAI |
| enumeration | GPS | Global Positioning System's time scale; runs 19 s behind TAI, 51.184 s behind TT. |
| enumeration | LST | Local Siderial Time; only for ground-based observations; note that the second is shorter |
| enumeration | GMST | Greenwich Mean Siderial Time; only for ground-based observations; note that the second is shorter |
| enumeration | LOCAL | Only to be used for simulations in conjunction with a relocatable spatial frame |

Used by

| | |
|---|---|
| Elements | ComplementaryReturnInfoType/time_scale, astronTimeType/Timescale, timeFrame-Type/TimeScale |

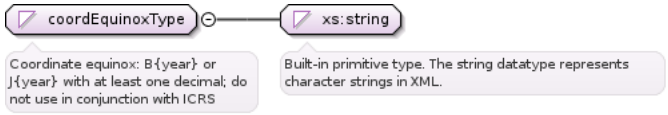
Source

```
<xs:simpleType name="timeScaleType">
  <xs:annotation>
    <xs:documentation>The actual time scale used: TT, TAI, UTC, TDB, etc.</
xs:documentation>
```

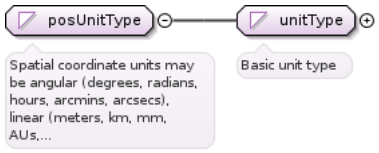
```
 </xs:annotation>
 <xs:restriction base="xs:string">
   <xs:enumeration value="TT">
     <xs:annotation>
       <xs:documentation>Terrestrial Time; the basis for ephemerides</xs:documentation>
     </xs:annotation>
   </xs:enumeration>
   <xs:enumeration value="TDT">
     <xs:annotation>
       <xs:documentation>Obsolete synonym for TT</xs:documentation>
     </xs:annotation>
   </xs:enumeration>
   <xs:enumeration value="ET">
     <xs:annotation>
       <xs:documentation>Ephemeris Time; predecessor of, and continuous with, TT</
xs:documentation>
     </xs:annotation>
   </xs:enumeration>
   <xs:enumeration value="TDB">
     <xs:annotation>
       <xs:documentation>Barycentric Dynamic Time:the independent variable in planetay
 ephemerides; time at the solar system barycenter synchronous with TT on an annual basis;
 sometimes called TEB</xs:documentation>
     </xs:annotation>
   </xs:enumeration>
   <xs:enumeration value="TEB">
     <xs:annotation>
       <xs:documentation>Barycentric Ephemeris Time: time at the solar system barycenter
 synchronous with TT on an annual basis; a deprecated synonym of TDB.</xs:documentation>
     </xs:annotation>
   </xs:enumeration>
   <xs:enumeration value="TCG">
     <xs:annotation>
       <xs:documentation>Terrestrial Coordinate Time</xs:documentation>
     </xs:annotation>
   </xs:enumeration>
   <xs:enumeration value="TCB">
     <xs:annotation>
       <xs:documentation>Barycentric Coordinate Time; runs slower than TDB but is
 consistent with physical constants</xs:documentation>
     </xs:annotation>
   </xs:enumeration>
   <xs:enumeration value="TAI">
     <xs:annotation>
       <xs:documentation>International Atomic Time; runs 32.184 s behind TT</
xs:documentation>
     </xs:annotation>
   </xs:enumeration>
   <xs:enumeration value="IAT">
     <xs:annotation>
       <xs:documentation>Synonym for TAI</xs:documentation>
     </xs:annotation>
   </xs:enumeration>
   <xs:enumeration value="UTC">
     <xs:annotation>
       <xs:documentation>Coordinated Universal Time; currently (2006) runs 33 leapseconds
 behind TAI</xs:documentation>
     </xs:annotation>
   </xs:enumeration>
   <xs:enumeration value="GPS">
     <xs:annotation>
       <xs:documentation>Global Positioning System's time scale; runs 19 s behind TAI,
 51.184 s behind TT.</xs:documentation>
     </xs:annotation>
   </xs:enumeration>
   <xs:enumeration value="LST">
     <xs:annotation>
       <xs:documentation>Local Siderial Time; only for ground-based observations; note
 that the second is shorter</xs:documentation>
     </xs:annotation>
   </xs:enumeration>
   <xs:enumeration value="GMST">
     <xs:annotation>
       <xs:documentation>Greenwich Mean Siderial Time; only for ground-based
 observations; note that the second is shorter</xs:documentation>
     </xs:annotation>
   </xs:enumeration>
   <xs:enumeration value="LOCAL">
     <xs:annotation>
       <xs:documentation>Only to be used for simulations in conjunction with a
 relocatable spatial frame</xs:documentation>
     </xs:annotation>
   </xs:enumeration>
```

| | |
|---|---|
| | </xs:restriction><br></xs:simpleType> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Simple Type coordEquinoxType

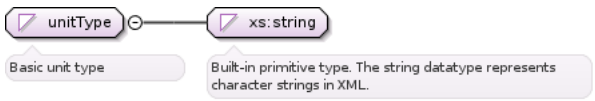
| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Coordinate equinox: B{year} or J{year} with at least one decimal; do not use in conjunction with ICRS |
| Diagram |  |
| Type | restriction of xs:string |
| Facets | pattern [BJ]\-?\d?\d?\d\d\d\d\.\d\d?\d? |
| Used by | Element fkType/Equinox |
| Source | <xs:simpleType name="coordEquinoxType"><br><xs:annotation><br><xs:documentation>Coordinate equinox: B{year} or J{year} with at least one decimal; do not use in conjunction with ICRS</xs:documentation><br></xs:annotation><br><xs:restriction base="xs:string"><br><xs:pattern value="[BJ]\-?\d?\d?\d?\d\d\d\d\.\d\d?\d?"/><br></xs:restriction><br></xs:simpleType> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Simple Type posUnitType

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Spatial coordinate units may be angular (degrees, radians, hours, arcmins, arcsecs), linear (meters, km, mm, AUs, parsecs, kpc, Mpc, lightyears), or empty (i.e., dimensionless). The three-units strings are for special 3-D vectors where the components do not share the same unit; one may prefer to give each component its own unit, instead. |
| Diagram |  |
| Type | restriction of unitType |
| Type hierarchy | • xs:string<br>• unitType<br>• posUnitType |
| Facets | enumeration deg<br>enumeration deg deg m<br>enumeration deg deg Mpc<br>enumeration rad<br>enumeration h<br>enumeration arcmin<br>enumeration arcsec<br>enumeration m<br>enumeration km<br>enumeration mm<br>enumeration AU<br>enumeration pc<br>enumeration kpc |

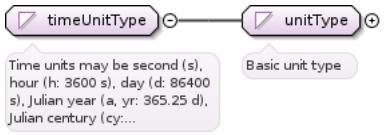
| | | |
|---|---|---|
| | enumeration | Mpc |
| | enumeration | lyr |
| | enumeration | |
| Used by | Attributes | double1Type/@pos_unit, double2Type/@unit, double3Type/@unit, double4Type/@unit, double9Type/@unit, geodType/@unit, orbitType/Aop/@unit, orbitType/M/@unit, orbitType/Node/@unit, orbitType/a/@unit, orbitType/i/@unit, orbitType/q/@unit, posVector1CoordinateType/@unit, posVector2CoordinateType/@unit, posVector3CoordinateType/@unit, redshiftCoordinateType/@unit, redshiftIntervalType/@unit, regionAreaType/@linearAreaUnit, spatialIntervalType/@unit, sphereType/@radius_unit, velocitySphereType/@radius_unit |
| Source | <xs:simpleType name="posUnitType"><br><xs:annotation><br><xs:documentation>Spatial coordinate units may be angular (degrees, radians, hours, arcmins, arcsecs), linear (meters, km, mm, AUs, parsecs, kpc, Mpc, lightyears), or empty (i.e., dimensionless). The three-units strings are for special 3-D vectors where the components do not share the same unit; one may prefer to give each component its own unit, instead.</xs:documentation><br></xs:annotation><br><xs:restriction base="unitType"><br><xs:enumeration value="deg"/><br><xs:enumeration value="deg deg m"/><br><xs:enumeration value="deg deg Mpc"/><br><xs:enumeration value="rad"/><br><xs:enumeration value="h"/><br><xs:enumeration value="arcmin"/><br><xs:enumeration value="arcsec"/><br><xs:enumeration value="m"/><br><xs:enumeration value="km"/><br><xs:enumeration value="mm"/><br><xs:enumeration value="AU"/><br><xs:enumeration value="pc"/><br><xs:enumeration value="kpc"/><br><xs:enumeration value="Mpc"/><br><xs:enumeration value="lyr"/><br><xs:enumeration value=""/><br></xs:restriction><br></xs:simpleType> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Simple Type unitType

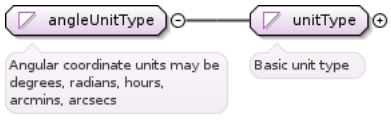
| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Basic unit type |
| Diagram |  |
| Type | xs:string |
| Used by | Simple Types: angleUnitType, posUnitType, spectralUnitType, timeUnitType, velTimeUnitType<br>Attributes: double1Type/@gen_unit, double2Type/@gen_unit, double3Type/@gen_unit, double4Type/@gen_unit, double9Type/@gen_unit, genVector2CoordinateType/@unit, genVector3CoordinateType/@unit, scalarCoordinateType/@unit, stringCoordinateType/@unit, uCoord2VecIntervalType/@unit, uCoord3VecIntervalType/@unit, uCoordScalarIntervalType/@unit |
| Source | <xs:simpleType name="unitType"><br><xs:annotation><br><xs:documentation>Basic unit type</xs:documentation><br></xs:annotation><br><xs:restriction base="xs:string"/><br></xs:simpleType> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Simple Type timeUnitType

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Time units may be second (s), hour (h: 3600 s), day (d: 86400 s), Julian year (a, yr: 365.25 d), Julian century (cy: 36525 d), or empty (i.e., dimensionless) for ISO-8601 format |

| | |
|---|---|
| Diagram |  |
| Type | restriction of unitType |
| Type hierarchy | • xs:string<br>  • unitType<br>  • timeUnitType |
| Facets | enumeration s<br>enumeration h<br>enumeration d<br>enumeration a<br>enumeration yr<br>enumeration cy<br>enumeration |
| Used by | Attributes: double1Type/@time_unit, orbitType/P/@unit, timeCoordinateType/@unit, timeOffsetType/@unit |
| Source | <xs:simpleType name="timeUnitType"><br><xs:annotation><br><xs:documentation>Time units may be second (s), hour (h: 3600 s), day (d: 86400 s), Julian year (a, yr: 365.25 d), Julian century (cy: 36525 d), or empty (i.e., dimensionless) for ISO-8601 format</xs:documentation><br></xs:annotation><br><xs:restriction base="unitType"><br><xs:enumeration value="s"/><br><xs:enumeration value="h"/><br><xs:enumeration value="d"/><br><xs:enumeration value="a"/><br><xs:enumeration value="yr"/><br><xs:enumeration value="cy"/><br><xs:enumeration value=""/><br></xs:restriction><br></xs:simpleType> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

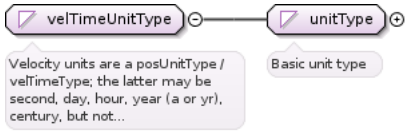
## Simple Type angleUnitType

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Angular coordinate units may be degrees, radians, hours, arcmins, arcsecs |
| Diagram |  |
| Type | restriction of unitType |
| Type hierarchy | • xs:string<br>  • unitType<br>  • angleUnitType |
| Facets | enumeration deg<br>enumeration rad<br>enumeration h<br>enumeration arcmin<br>enumeration arcsec |
| Used by | Attributes: double1Type/@pos_angle_unit, posAngleType/@unit |
| Source | <xs:simpleType name="angleUnitType"><br><xs:annotation><br><xs:documentation>Angular coordinate units may be degrees, radians, hours, arcmins, arcsecs</xs:documentation> |

```
  </xs:annotation>
  <xs:restriction base="unitType">
    <xs:enumeration value="deg"/>
    <xs:enumeration value="rad"/>
    <xs:enumeration value="h"/>
    <xs:enumeration value="arcmin"/>
    <xs:enumeration value="arcsec"/>
  </xs:restriction>
</xs:simpleType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Simple Type `velTimeUnitType`

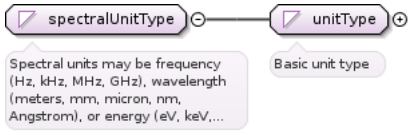
| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `Velocity units are a posUnitType / velTimeType; the latter may be second, day, hour, year (a or yr), century, but not empty` |
| Diagram |   |
| Type | restriction of unitType |
| Type hierarchy | • xs:string<br>  • unitType<br>  • velTimeUnitType |
| Facets | enumeration `s`<br>enumeration `h`<br>enumeration `d`<br>enumeration `a`<br>enumeration `yr`<br>enumeration `cy` |
| Used by | Attributes: double1Type/@vel_time_unit, double2Type/@vel_time_unit, double3Type/@vel_time_unit, double4Type/@vel_time_unit, double9Type/@vel_time_unit, redshiftCoordinate-Type/@vel_time_unit, redshiftIntervalType/@vel_time_unit, velVector1CoordinateType/@vel_time_unit, velVector2CoordinateType/@vel_time_unit, velVector3CoordinateType/@vel_time_unit, velocityIntervalType/@vel_time_unit |

Source

```
<xs:simpleType name="velTimeUnitType">
  <xs:annotation>
    <xs:documentation>Velocity units are a posUnitType / velTimeType; the latter may be
 second, day, hour, year (a or yr), century, but not empty</xs:documentation>
  </xs:annotation>
  <xs:restriction base="unitType">
    <xs:enumeration value="s"/>
    <xs:enumeration value="h"/>
    <xs:enumeration value="d"/>
    <xs:enumeration value="a"/>
    <xs:enumeration value="yr"/>
    <xs:enumeration value="cy"/>
  </xs:restriction>
</xs:simpleType>
```

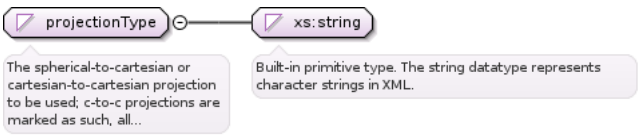
| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Simple Type `spectralUnitType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `Spectral units may be frequency (Hz, kHz, MHz, GHz), wavelength (meters, mm, micron, nm, Angstrom), or energy (eV, keV, MeV, GeV, TeV)` |
| Diagram |   |
| Type | restriction of unitType |
| Type hierarchy | • xs:string |

| | |
|---|---|
| | • unitType<br>  • spectralUnitType |
| Facets | enumeration Hz<br>enumeration kHz<br>enumeration MHz<br>enumeration GHz<br>enumeration m<br>enumeration mm<br>enumeration um<br>enumeration nm<br>enumeration Angstrom<br>enumeration eV<br>enumeration keV<br>enumeration MeV<br>enumeration GeV<br>enumeration TeV |
| Used by | Attributes: double1Type/@spectral_unit, spectralCoordinateType/@unit, spectralIntervalType/@unit |
| Source | <xs:simpleType name="spectralUnitType"><br><xs:annotation><br><xs:documentation>Spectral units may be frequency (Hz, kHz, MHz, GHz), wavelength (meters, mm, micron, nm, Angstrom), or energy (eV, keV, MeV, GeV, TeV)</xs:documentation><br></xs:annotation><br><xs:restriction base="unitType"><br><xs:enumeration value="Hz"/><br><xs:enumeration value="kHz"/><br><xs:enumeration value="MHz"/><br><xs:enumeration value="GHz"/><br><xs:enumeration value="m"/><br><xs:enumeration value="mm"/><br><xs:enumeration value="um"/><br><xs:enumeration value="nm"/><br><xs:enumeration value="Angstrom"/><br><xs:enumeration value="eV"/><br><xs:enumeration value="keV"/><br><xs:enumeration value="MeV"/><br><xs:enumeration value="GeV"/><br><xs:enumeration value="TeV"/><br></xs:restriction><br></xs:simpleType> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Simple Type projectionType

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The spherical-to-cartesian or cartesian-to-cartesian projection to be used; c-to-c projections are marked as such, all others are to be interpreted as s-to-c |
| Diagram |  |
| Type | restriction of xs:string |
| Facets | enumeration: Planar (i.e., linear cartesian-to-cartesian) projection<br>enumeration LOG: Linear-to-logarithmic cartesian-to-cartesian projection<br>enumeration TAN: Tangent plane projection<br>enumeration SIN: Sine projection<br>enumeration STG: Stereographic projection<br>enumeration ARC: Zenithal equidistant projection |

| | | | |
|---|---|---|---|
| | enumeration | ZEA | Zenithal equal-area projection |
| | enumeration | AIR | Airy projection |
| | enumeration | CEA | Cylindrical equal-area projection |
| | enumeration | CAR | Plate Carree projection |
| | enumeration | MER | Mercator projection |
| | enumeration | SFL | Sanson-Flamsteed projection |
| | enumeration | PAR | Parabolic projection |
| | enumeration | MOL | Mollweide projection |
| | enumeration | AIT | Hammer-Aitoff projection |
| | enumeration | COE | Conic equal-area projection |
| | enumeration | COD | Conic equidistant projection |
| | enumeration | COO | Conic orthomorphic projection |
| | enumeration | BON | Bonne equal-area projection |
| | enumeration | PCO | Polyconic projection |
| | enumeration | TSC | Tangential spherical cube projection |
| | enumeration | CSC | COBE quadrilateralized spherical cube projection |
| | enumeration | QSC | Quadrilateralized spherical cube projection |
| Used by | Attributes | cart1DRefFrameType/@projection, cart2DRefFrameType/@projection, cart3DRefFrameType/@projection | |

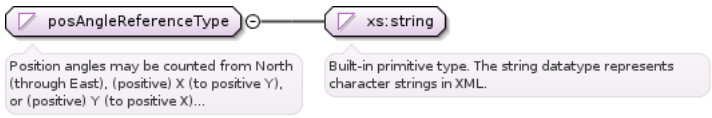
Source

```
<xs:simpleType name="projectionType">
  <xs:annotation>
    <xs:documentation>The spherical-to-cartesian or cartesian-to-cartesian projection to
 be used; c-to-c projections are marked as such, all others are to be interpreted as s-to-
c</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:string">
    <xs:enumeration value="">
      <xs:annotation>
        <xs:documentation>Planar (i.e., linear cartesian-to-cartesian) projection</
xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="LOG">
      <xs:annotation>
        <xs:documentation>Linear-to-logarithmic cartesian-to-cartesian projection</
xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="TAN">
      <xs:annotation>
        <xs:documentation>Tangent plane projection</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="SIN">
      <xs:annotation>
        <xs:documentation>Sine projection</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="STG">
      <xs:annotation>
        <xs:documentation>Stereographic projection</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="ARC">
      <xs:annotation>
        <xs:documentation>Zenithal equidistant projection</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="ZEA">
      <xs:annotation>
        <xs:documentation>Zenithal equal-area projection</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="AIR">
      <xs:annotation>
        <xs:documentation>Airy projection</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
```

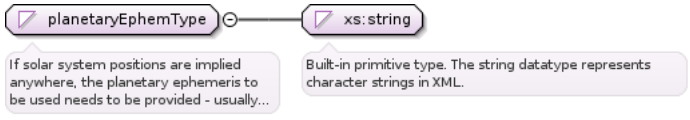
```
    <xs:enumeration value="CEA">
      <xs:annotation>
        <xs:documentation>Cylindrical equal-area projection</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="CAR">
      <xs:annotation>
        <xs:documentation>Plate Carree projection</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="MER">
      <xs:annotation>
        <xs:documentation>Mercator projection</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="SFL">
      <xs:annotation>
        <xs:documentation>Sanson-Flamsteed projection</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="PAR">
      <xs:annotation>
        <xs:documentation>Parabolic projection</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="MOL">
      <xs:annotation>
        <xs:documentation>Mollweide projection</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="AIT">
      <xs:annotation>
        <xs:documentation>Hammer-Aitoff projection</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="COE">
      <xs:annotation>
        <xs:documentation>Conic equal-area projection</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="COD">
      <xs:annotation>
        <xs:documentation>Conic equidistant projection</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="COO">
      <xs:annotation>
        <xs:documentation>Conic orthomorphic projection</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="BON">
      <xs:annotation>
        <xs:documentation>Bonne equal-area projection</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="PCO">
      <xs:annotation>
        <xs:documentation>Polyconic projection</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="TSC">
      <xs:annotation>
        <xs:documentation>Tangential spherical cube projection</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="CSC">
      <xs:annotation>
        <xs:documentation>COBE quadrilateralized spherical cube projection</
xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="QSC">
      <xs:annotation>
        <xs:documentation>Quadrilateralized spherical cube projection</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
  </xs:restriction>
</xs:simpleType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

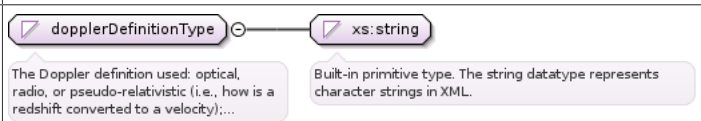
## Simple Type posAngleReferenceType

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Position angles may be counted from North (through East), (positive) X (to positive Y), or (positive) Y (to positive X) axis |
| Diagram |  |
| Type | restriction of xs:string |
| Facets | enumeration North<br>enumeration X<br>enumeration Y |
| Used by | Attribute posAngleType/@reference |
| Source | <xs:simpleType name="posAngleReferenceType"><br><xs:annotation><br><xs:documentation>Position angles may be counted from North (through East), (positive) X (to positive Y), or (positive) Y (to positive X) axis</xs:documentation><br></xs:annotation><br><xs:restriction base="xs:string"><br><xs:enumeration value="North"/><br><xs:enumeration value="X"/><br><xs:enumeration value="Y"/><br></xs:restriction><br></xs:simpleType> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Simple Type planetaryEphemType

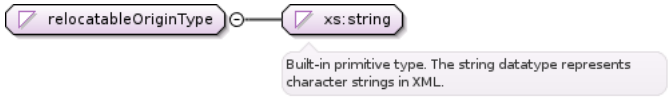
| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | If solar system positions are implied anywhere, the planetary ephemeris to be used needs to be provided - usually JPL-DE405 with ICRS and JPL-DE200 with FK5 |
| Diagram |  |
| Type | restriction of xs:string |
| Facets | enumeration JPL-DE200<br>enumeration JPL-DE405 |
| Used by | Element stdRefPosType/PlanetaryEphem |
| Source | <xs:simpleType name="planetaryEphemType"><br><xs:annotation><br><xs:documentation>If solar system positions are implied anywhere, the planetary ephemeris to be used needs to be provided - usually JPL-DE405 with ICRS and JPL-DE200 with FK5</xs:documentation><br></xs:annotation><br><xs:restriction base="xs:string"><br><xs:enumeration value="JPL-DE200"/><br><xs:enumeration value="JPL-DE405"/><br></xs:restriction><br></xs:simpleType> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Simple Type dopplerDefinitionType

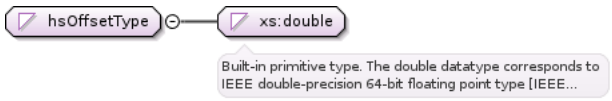
| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The Doppler definition used: optical, radio, or pseudo-relativistic (i.e., how is a redshift converted to a velocity); the most common is optical, except when the reference is LSR (usually radio) |
| Diagram |  |

| | |
|---|---|
| Type | restriction of xs:string |
| Facets | enumeration OPTICAL<br>enumeration RADIO<br>enumeration RELATIVISTIC |
| Used by | Element redshiftFrameType/DopplerDefinition |
| Source | <xs:simpleType name="dopplerDefinitionType"><br><xs:annotation><br><xs:documentation>The Doppler definition used: optical, radio, or pseudo-relativistic (i.e., how is a redshift converted to a velocity); the most common is optical, except when the reference is LSR (usually radio)</xs:documentation><br></xs:annotation><br><xs:restriction base="xs:string"><br><xs:enumeration value="OPTICAL"/><br><xs:enumeration value="RADIO"/><br><xs:enumeration value="RELATIVISTIC"/><br></xs:restriction><br></xs:simpleType> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

### Simple Type `relocatableOriginType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Diagram |  |
| Type | restriction of xs:string |
| Facets | enumeration RELOCATABLE |
| Used by | Element TimeOrigin |
| Source | <xs:simpleType name="relocatableOriginType"><br><xs:restriction base="xs:string"><br><xs:annotation><br><xs:documentation>A relocatable time origin for simulations</xs:documentation><br></xs:annotation><br><xs:enumeration value="RELOCATABLE"/><br></xs:restriction><br></xs:simpleType> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

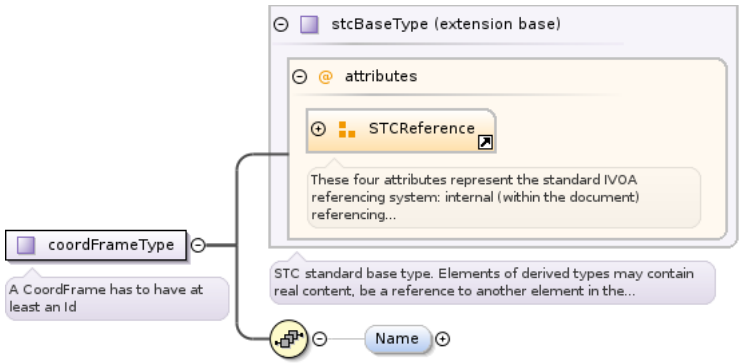
### Simple Type `hsOffsetType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Diagram |  |
| Type | restriction of xs:double |
| Facets | maxInclusive 1.0<br>minInclusive -1.0 |
| Used by | Element halfspaceType/Offset |
| Source | <xs:simpleType name="hsOffsetType"><br><xs:restriction base="xs:double"><br><xs:minInclusive value="-1.0"/><br><xs:maxInclusive value="1.0"/><br></xs:restriction><br></xs:simpleType> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type(s)

### Complex Type `coordFrameType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

| | |
|---|---|
| Annotations | A CoordFrame has to have at least an Id |
| Diagram |  |
| Type | extension of stcBaseType |
| Type hierarchy | • stcBaseType<br>  • coordFrameType |
| Used by | Complex Types: genericCoordFrameType, redshiftFrameType, spaceFrameType, spectralFrameType, time-FrameType |
| Model | Name{0,1} |
| Children | Name |

Attributes

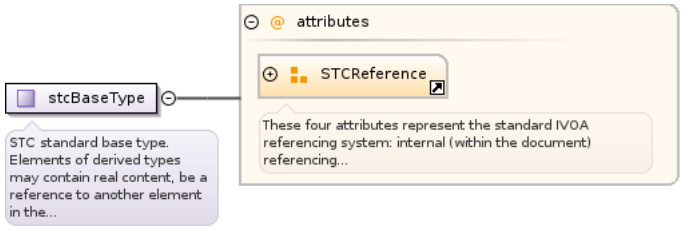
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:complexType name="coordFrameType">
  <xs:annotation>
    <xs:documentation>A CoordFrame has to have at least an Id</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="stcBaseType">
      <xs:sequence>
        <xs:element name="Name" type="xs:string" minOccurs="0"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type `stcBaseType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | STC standard base type. Elements of derived types may contain real content, be a reference to another element in the document (idref), or be a reference to a distributed resource; the href is to be a standard IVOA identifier or a valid URL. Actuation is up to the client. At this time it is required to be of type simple. An id is optional; it allows referencing by other elements. |
| Diagram |  |

| | | |
|---|---|---|
| Properties | abstract: | `true` |
| Used by | Complex Types | coordAreaType, coordFrameType, coordIntervalType, coordSysType, coordinate-Type, coordsType, curve2Type, curve3Type, double2Type, double3Type, double4Type, double9Type, stcMetadataType |

Attributes

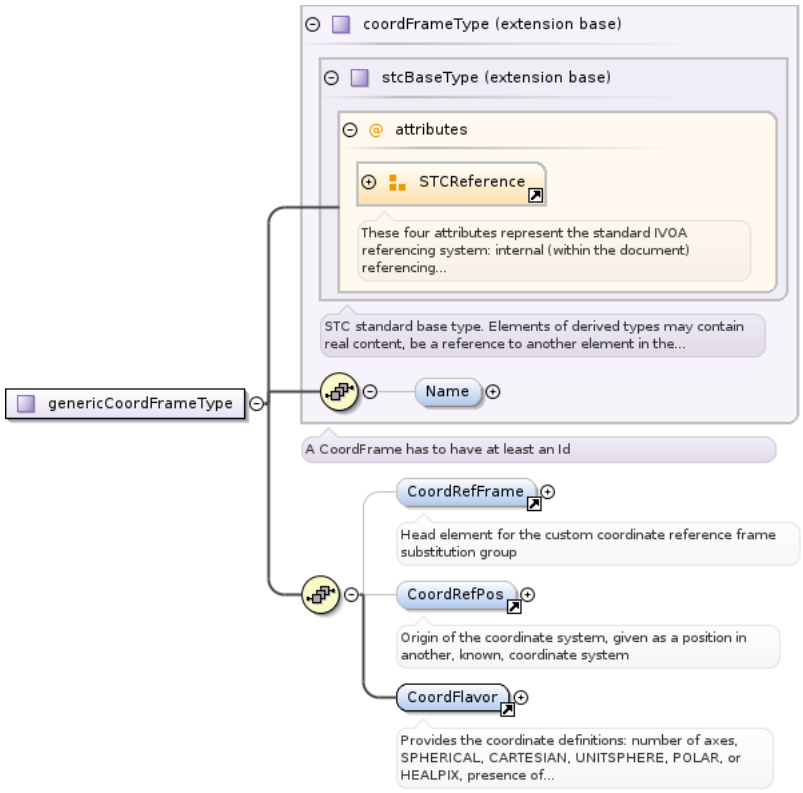
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:complexType name="stcBaseType" abstract="true">
  <xs:annotation>
    <xs:documentation>STC standard base type. Elements of derived types may contain real
 content, be a reference to another element in the document (idref), or be a reference
 to a distributed resource; the href is to be a standard IVOA identifier or a valid URL.
 Actuation is up to the client. At this time it is required to be of type simple. An id is
 optional; it allows referencing by other elements.</xs:documentation>
  </xs:annotation>
  <xs:attributeGroup ref="STCReference"/>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type `genericCoordFrameType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Diagram |  |
| Type | extension of coordFrameType |
| Type hierarchy | • stcBaseType<br>  • coordFrameType<br>  • genericCoordFrameType |

| | |
|---|---|
| Used by | Element: CoordFrame<br>Complex Type: pixelFrameType |
| Model | Name{0,1} , CoordRefFrame{0,1} , CoordRefPos{0,1} , CoordFlavor |
| Children | CoordFlavor, CoordRefFrame, CoordRefPos, Name |

Attributes

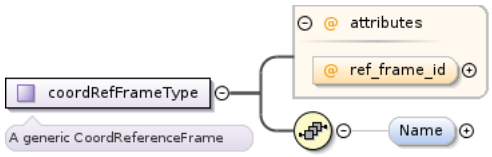
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:complexType name="genericCoordFrameType">
  <xs:complexContent>
    <xs:extension base="coordFrameType">
      <xs:sequence>
        <xs:element ref="CoordRefFrame" minOccurs="0"/>
        <xs:element ref="CoordRefPos" minOccurs="0"/>
        <xs:element ref="CoordFlavor">
          <xs:annotation>
            <xs:documentation>Provides the coordinate definitions: number of axes,
 SPHERICAL, CARTESIAN, UNITSPHERE, POLAR, or HEALPIX, presence of velocities</
xs:documentation>
          </xs:annotation>
        </xs:element>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type coordRefFrameType

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | A generic CoordReferenceFrame |
| Diagram |  |



| | |
|---|---|
| Used by | Elements: CoordRefFrame, CustomSpaceRefFrame, SpaceRefFrame<br>Complex Types: cart1DRefFrameType, cart2DRefFrameType, cart3DRefFrameType, spaceRefFrameType, sphericalRefFrameType |
| Model | Name{0,1} |
| Children | Name |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **ref_frame_id** | xs:IDREF | | | optional |

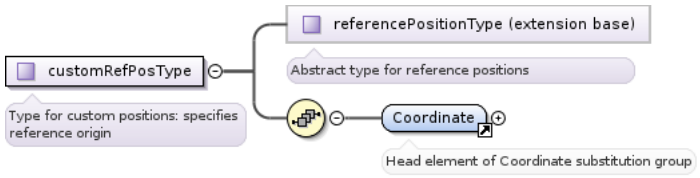
Source

```
<xs:complexType name="coordRefFrameType">
  <xs:annotation>
    <xs:documentation>A generic CoordReferenceFrame</xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="Name" type="xs:string" minOccurs="0"/>
  </xs:sequence>
  <xs:attribute name="ref_frame_id" type="xs:IDREF"/>
</xs:complexType>
```

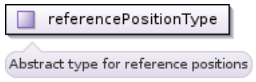
| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type customRefPosType

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

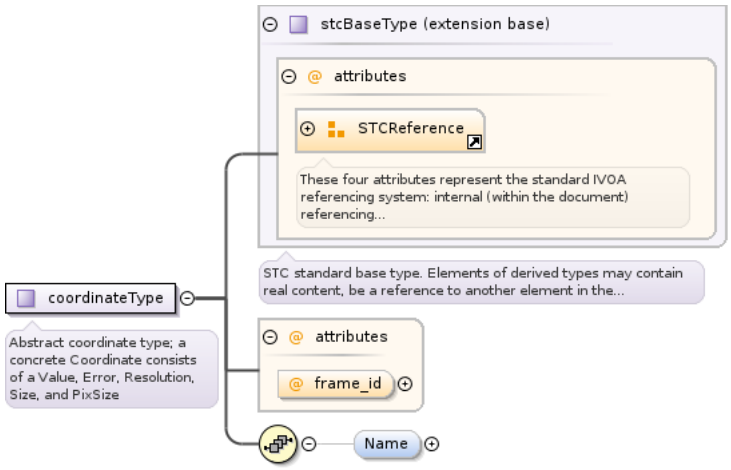
| | |
|---|---|
| Annotations | Type for custom positions: specifies reference origin |
| Diagram |  |
| Type | extension of referencePositionType |
| Type hierarchy | • referencePositionType<br>• customRefPosType |
| Used by | Element CoordRefPos |
| Model | Coordinate |
| Children | Coordinate |
| Source | <xs:complexType name="customRefPosType"><br><xs:annotation><br><xs:documentation>Type for custom positions: specifies reference origin</xs:documentation><br></xs:annotation><br><xs:complexContent><br><xs:extension base="referencePositionType"><br><xs:sequence><br><xs:element ref="Coordinate"/><br></xs:sequence><br></xs:extension><br></xs:complexContent><br></xs:complexType> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type referencePositionType

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Abstract type for reference positions |
| Diagram |  |
| Properties | abstract: true |
| Used by | Complex Types customRefPosType, genericRefPosType, stdRefPosType<br>Element ReferencePosition |
| Source | <xs:complexType name="referencePositionType" abstract="true"><br><xs:annotation><br><xs:documentation>Abstract type for reference positions</xs:documentation><br></xs:annotation><br></xs:complexType> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type coordinateType

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Abstract coordinate type; a concrete Coordinate consists of a Value, Error, Resolution, Size, and PixSize |

| | |
|---|---|
| Diagram |  |
| Type | extension of stcBaseType |
| Type hierarchy | • stcBaseType<br>  • coordinateType |
| Used by | Elements: Coordinate, GenCoordinate, Pixel, Position, Velocity<br>Complex Types: astroCoordsFileType, basicCoordinateType, orbitType, pixelVector1CoordinateType, pixelVector2CoordinateType, pixelVector3CoordinateType, stringCoordinateType, timeCoordinateType, vector2CoordinateType, vector3CoordinateType |
| Model | Name{0,1} |
| Children | Name |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **frame_id** | xs:IDREF | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

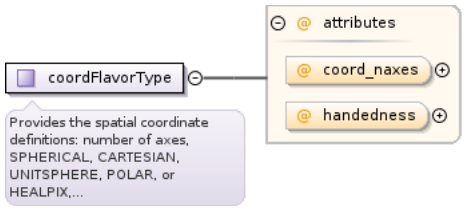
Source

```
<xs:complexType name="coordinateType">
  <xs:annotation>
    <xs:documentation>Abstract coordinate type; a concrete Coordinate consists of a Value,
 Error, Resolution, Size, and PixSize</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="stcBaseType">
      <xs:sequence>
        <xs:element name="Name" type="xs:string" minOccurs="0"/>
      </xs:sequence>
      <xs:attribute name="frame_id" type="xs:IDREF" use="optional"/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type `coordFlavorType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Provides the spatial coordinate definitions: number of axes, SPHERICAL, CARTESIAN, UNITSPHERE, POLAR, or HEALPIX, presence of velocities |

| | |
|---|---|
| Diagram |  |
| Used by | Elements: CARTESIAN, CYLINDRICAL, CoordFlavor, POLAR, SPHERICAL, STRING, UNITSPHERE<br>Complex Type: healpixType |

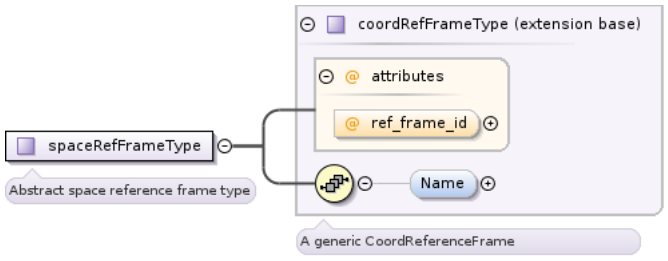
| Attributes | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **coord_naxes** | restriction of xs:integer | | 2 | optional |
| | **handedness** | restriction of xs:string | | | optional |

Source

```
<xs:complexType name="coordFlavorType">
  <xs:annotation>
    <xs:documentation>Provides the spatial coordinate definitions: number of axes,
 SPHERICAL, CARTESIAN, UNITSPHERE, POLAR, or HEALPIX, presence of velocities</
xs:documentation>
  </xs:annotation>
  <xs:attribute name="coord_naxes" default="2">
    <xs:simpleType>
      <xs:restriction base="xs:integer">
        <xs:minInclusive value="1"/>
        <xs:maxInclusive value="3"/>
      </xs:restriction>
    </xs:simpleType>
  </xs:attribute>
  <xs:attribute name="handedness" use="optional">
    <xs:simpleType>
      <xs:restriction base="xs:string">
        <xs:enumeration value="left"/>
        <xs:enumeration value="right"/>
      </xs:restriction>
    </xs:simpleType>
  </xs:attribute>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

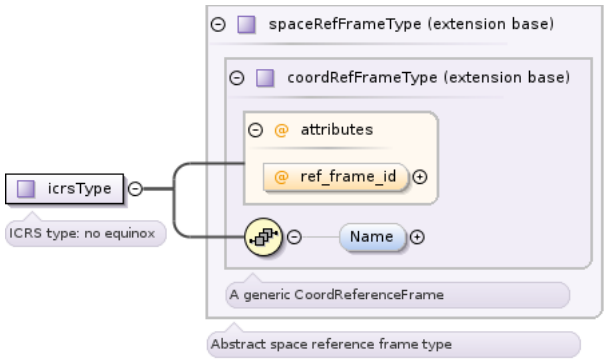
## Complex Type spaceRefFrameType

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Abstract space reference frame type |
| Diagram |  |
| Type | extension of coordRefFrameType |
| Type hierarchy | • coordRefFrameType<br>  • spaceRefFrameType |
| Properties | abstract: true |
| Used by | Complex Types: fkType, icrsType |
| Model | Name{0,1} |
| Children | Name |

| Attributes | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **ref_frame_id** | xs:IDREF | | | optional |

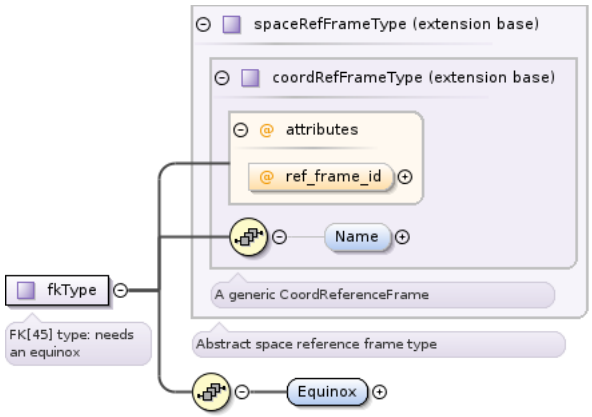
| | |
|---|---|
| Source | <xs:complexType name="spaceRefFrameType" abstract="true"><br>  <xs:annotation><br>  <xs:documentation>Abstract space reference frame type</xs:documentation><br>  </xs:annotation><br>  <xs:complexContent><br>  <xs:extension base="coordRefFrameType"/><br>  </xs:complexContent><br></xs:complexType> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type icrsType

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | ICRS type: no equinox |
| Diagram |  |
| Type | extension of spaceRefFrameType |
| Type hierarchy | • coordRefFrameType<br>  • spaceRefFrameType<br>  • icrsType |
| Used by | Complex Type: geodType<br>Elements: AZ_EL, BODY, GALACTIC_I, GALACTIC_II, GEO_C, GSE, GSM, HEE, HEEQ, HGC, HGI, HGS, HPC, HPR, HRTN, ICRS, JUPITER_C_III, JUPITER_G_III, LUNA_C, LUNA_G, MAG, MARS_C, MARS_G, MERCURY_C, MERCURY_G, NEPTUNE_C_III, NEPTUNE_G_III, PLUTO_C, PLUTO_G, SATURN_C_III, SATURN_G_III, SM, SUPER_GALACTIC, UNKNOWNFrame, URANUS_C_III, URANUS_G_III, VENUS_C, VENUS_G |
| Model | Name{0,1} |
| Children | Name |
| Attributes | **QName**: **ref_frame_id**; **Type**: xs:IDREF; **Fixed**: ; **Default**: ; **Use**: optional |
| Source | <xs:complexType name="icrsType"><br>  <xs:annotation><br>  <xs:documentation>ICRS type: no equinox</xs:documentation><br>  </xs:annotation><br>  <xs:complexContent><br>  <xs:extension base="spaceRefFrameType"/><br>  </xs:complexContent><br></xs:complexType> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

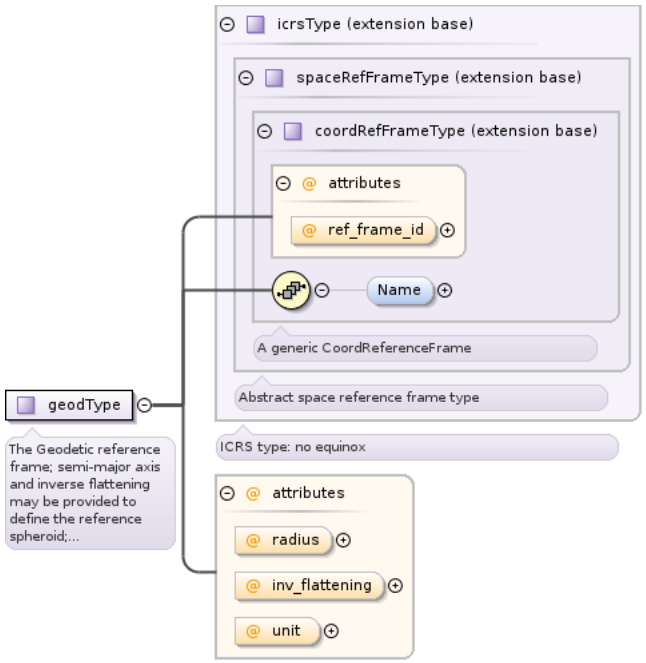
## Complex Type fkType

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | FK[45] type: needs an equinox |

| | |
|---|---|
| Diagram |  |
| Type | extension of spaceRefFrameType |
| Type hierarchy | • coordRefFrameType<br>• spaceRefFrameType<br>• fkType |
| Used by | Elements ECLIPTIC, FK4, FK5 |
| Model | Name{0,1} , Equinox |
| Children | Equinox, Name |
| Attributes | **QName** \| **Type** \| **Fixed** \| **Default** \| **Use**<br>**ref_frame_id** \| xs:IDREF \| \| \| optional |
| Source | `<xs:complexType name="fkType">`<br>`  <xs:annotation>`<br>`  <xs:documentation>FK[45] type: needs an equinox</xs:documentation>`<br>`  </xs:annotation>`<br>`  <xs:complexContent>`<br>`  <xs:extension base="spaceRefFrameType">`<br>`  <xs:sequence>`<br>`  <xs:element name="Equinox" type="coordEquinoxType" nillable="true"/>`<br>`  </xs:sequence>`<br>`  </xs:extension>`<br>`  </xs:complexContent>`<br>`</xs:complexType>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type geodType

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The Geodetic reference frame; semi-major axis and inverse flattening may be provided to define the reference spheroid; the default is the IAU 1976 reference spheroid |

| | |
|---|---|
| Diagram |  |
| Type | extension of icrsType |
| Type hierarchy | • coordRefFrameType<br>• spaceRefFrameType<br>• icrsType<br>• geodType |
| Used by | Element GEO_D |
| Model | Name{0,1} |
| Children | Name |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **inv_flattening** | xs:double | | 298.257 | optional |
| **radius** | xs:double | | 6378140 | optional |
| **ref_frame_id** | xs:IDREF | | | optional |
| **unit** | posUnitType | | m | optional |

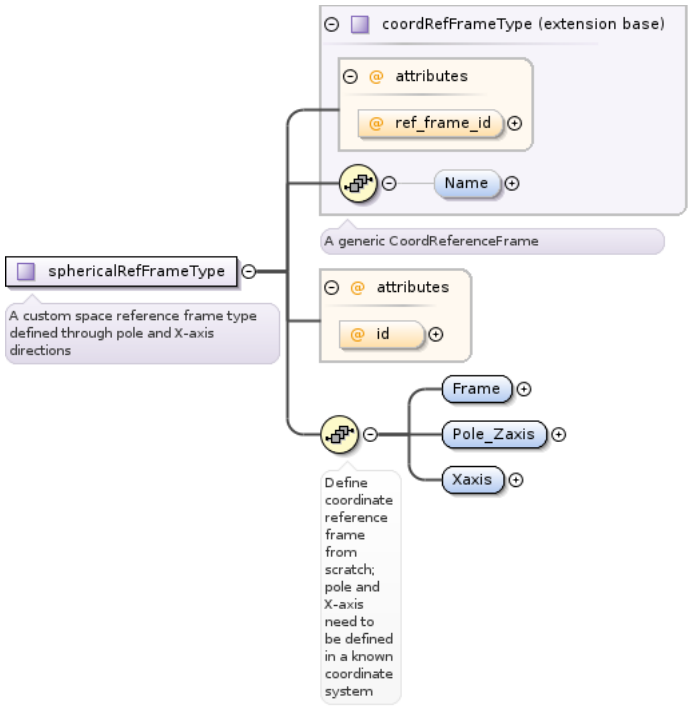
Source

```
<xs:complexType name="geodType">
  <xs:annotation>
    <xs:documentation>The Geodetic reference frame; semi-major axis and inverse flattening
 may be provided to define the reference spheroid; the default is the IAU 1976 reference
 spheroid</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="icrsType">
      <xs:attribute name="radius" type="xs:double" use="optional" default="6378140"/>
      <xs:attribute name="inv_flattening" type="xs:double" use="optional"
 default="298.257"/>
      <xs:attribute name="unit" type="posUnitType" use="optional" default="m"/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type `sphericalRefFrameType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | A custom space reference frame type defined through pole and X-axis directions |

| | |
|---|---|
| Diagram |  |
| Type | extension of coordRefFrameType |
| Type hierarchy | • coordRefFrameType<br>  • sphericalRefFrameType |
| Used by | Elements SphericalRefFrame, SphericalSpaceRefFrame |
| Model | Name{0,1} , Frame , Pole_Zaxis , Xaxis |
| Children | Frame, Name, Pole_Zaxis, Xaxis |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **id** | xs:ID | | | optional |
| **ref_frame_id** | xs:IDREF | | | optional |

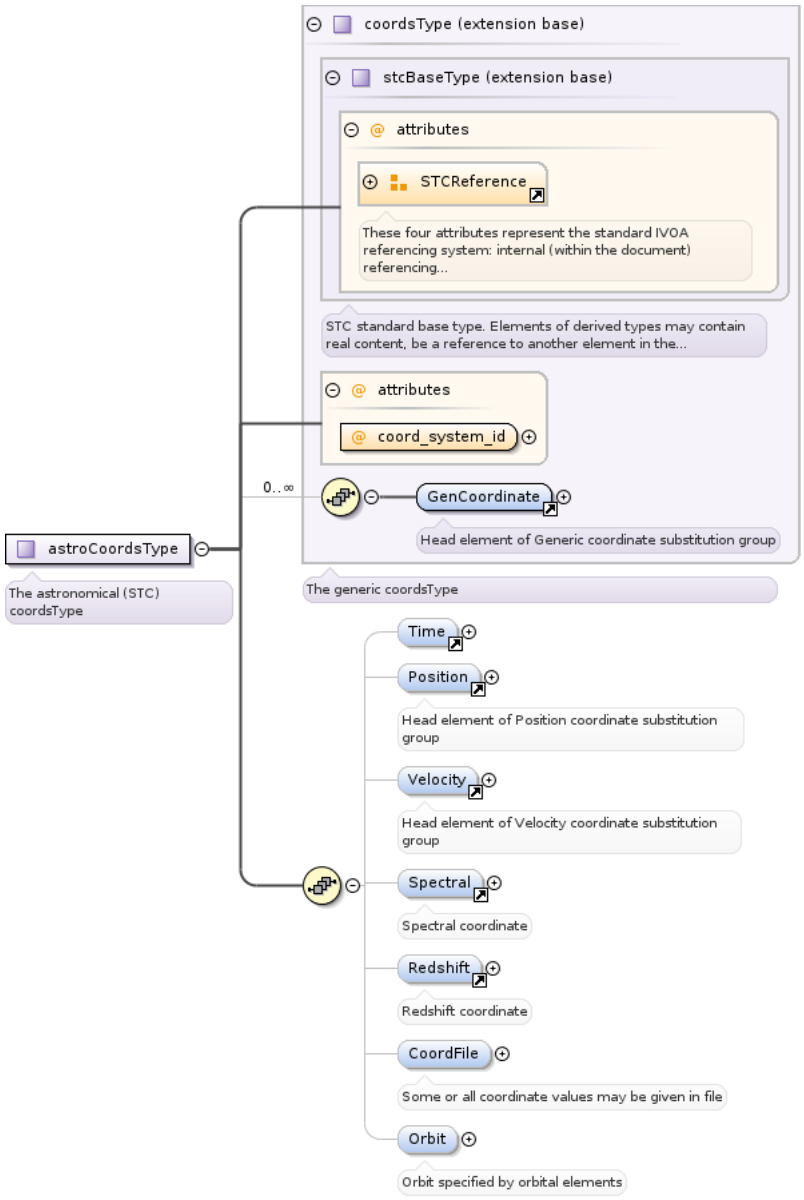
Source

```
<xs:complexType name="sphericalRefFrameType">
  <xs:annotation>
    <xs:documentation>A custom space reference frame type defined through pole and X-axis
 directions</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="coordRefFrameType">
      <xs:sequence>
        <xs:annotation>
          <xs:documentation>Define coordinate reference frame from scratch; pole and X-
axis need to be defined in a known coordinate system</xs:documentation>
        </xs:annotation>
        <xs:element name="Frame" type="xs:string"/>
        <xs:element name="Pole_Zaxis" type="astroCoordsType" nillable="true"/>
        <xs:element name="Xaxis" type="astroCoordsType" nillable="true"/>
      </xs:sequence>
      <xs:attribute name="id" type="xs:ID" use="optional"/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type `astroCoordsType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The astronomical (STC) coordsType |

| | |
|---|---|
| Diagram |  |
| Type | extension of coordsType |
| Type hierarchy | • stcBaseType<br>• coordsType<br>• astroCoordsType |
| Used by | Elements AstroCoords, sphericalRefFrameType/Pole_Zaxis, sphericalRefFrameType/Xaxis, timeFrameType/TimeRefDirection |
| Model | GenCoordinate , Time{0,1} , Position{0,1} , Velocity{0,1} , Spectral{0,1} , Redshift{0,1} , CoordFile{0,1} , Orbit{0,1} |
| Children | CoordFile, GenCoordinate, Orbit, Position, Redshift, Spectral, Time, Velocity |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | required |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |

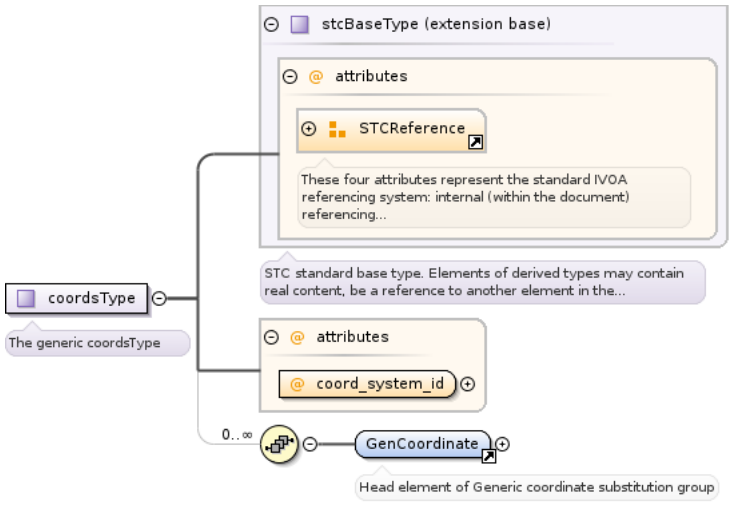
| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:complexType name="astroCoordsType">
  <xs:annotation>
    <xs:documentation>The astronomical (STC) coordsType</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="coordsType">
      <xs:sequence>
        <xs:element ref="Time" minOccurs="0"/>
        <xs:element ref="Position" minOccurs="0"/>
        <xs:element ref="Velocity" minOccurs="0"/>
        <xs:element ref="Spectral" minOccurs="0"/>
        <xs:element ref="Redshift" minOccurs="0"/>
        <xs:element name="CoordFile" type="astroCoordsFileType" nillable="true"
 minOccurs="0">
          <xs:annotation>
            <xs:documentation>Some or all coordinate values may be given in file</
xs:documentation>
          </xs:annotation>
        </xs:element>
        <xs:element name="Orbit" type="orbitType" nillable="true" minOccurs="0">
          <xs:annotation>
            <xs:documentation>Orbit specified by orbital elements</xs:documentation>
          </xs:annotation>
        </xs:element>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Complex Type coordsType

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The generic coordsType |
| Diagram |  |



| | |
|---|---|
| Type | extension of stcBaseType |
| Type hierarchy | • stcBaseType<br>  • coordsType |
| Used by | Complex Types: astroCoordsType, pixelCoordsType<br>Element: Coords |
| Model | GenCoordinate |
| Children | GenCoordinate |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |

| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **ID_type** | xs:string | | | optional |
| | **coord_system_id** | xs:IDREF | | | required |
| | **id** | xs:ID | | | optional |
| | **idref** | xs:IDREF | | | optional |
| | **ucd** | xs:string | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

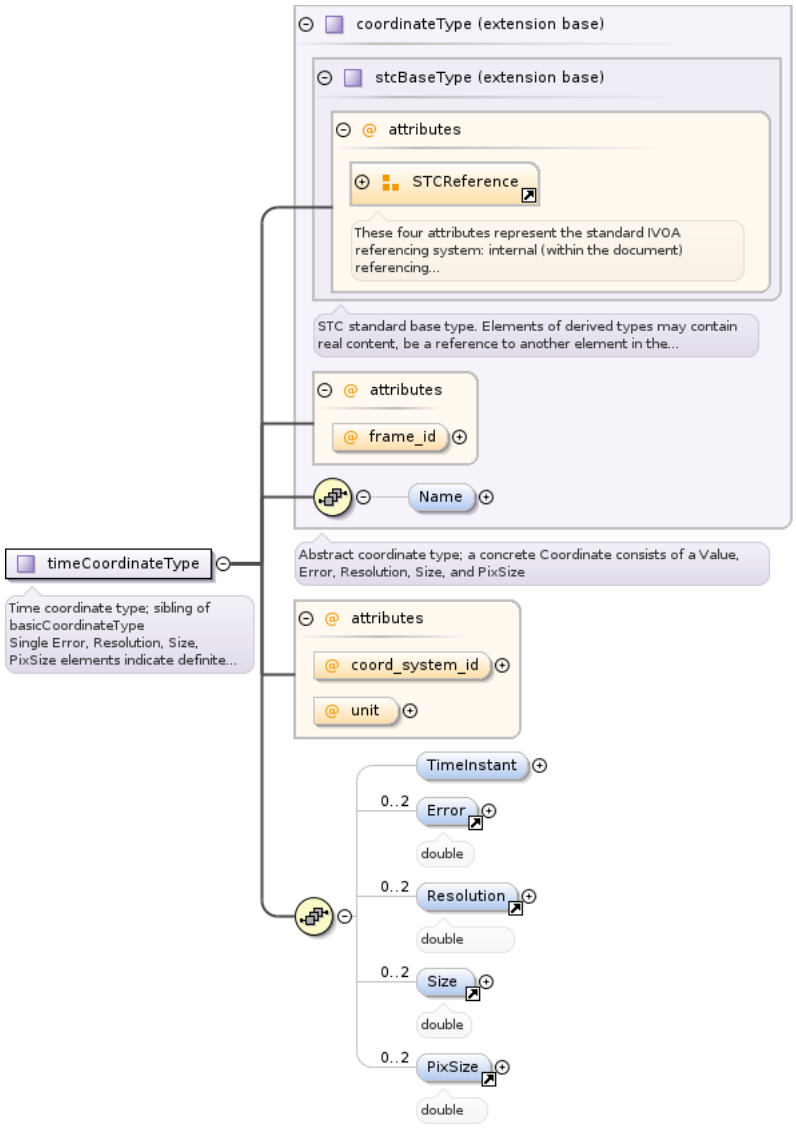
Source

```
<xs:complexType name="coordsType">
  <xs:annotation>
    <xs:documentation>The generic coordsType</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="stcBaseType">
      <xs:annotation>
        <xs:documentation>A CoordSys consists of at least one coordinate frames;
 unfortunately, schema inheritance and polymorphism doesn't allow us to specify this in
 the most genarl way</xs:documentation>
      </xs:annotation>
      <xs:sequence minOccurs="0" maxOccurs="unbounded">
        <xs:element ref="GenCoordinate"/>
      </xs:sequence>
      <xs:attribute name="coord_system_id" type="xs:IDREF" use="required"/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Complex Type `timeCoordinateType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Time coordinate type; sibling of basicCoordinateType<br><br>Single Error, Resolution, Size, PixSize elements indicate definite values; pairs indicate ranges |

| | |
|---|---|
| Diagram |  |
| Type | extension of coordinateType |
| Type hierarchy | • stcBaseType<br>• coordinateType<br>• timeCoordinateType |
| Used by | Element Time |
| Model | Name{0,1} , TimeInstant{0,1} , Error{0,2} , Resolution{0,2} , Size{0,2} , PixSize{0,2} |
| Children | Error, Name, PixSize, Resolution, Size, TimeInstant |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **frame_id** | xs:IDREF | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | timeUnitType | | s | optional |
| **xlink:href** | xs:anyURI | | | optional |

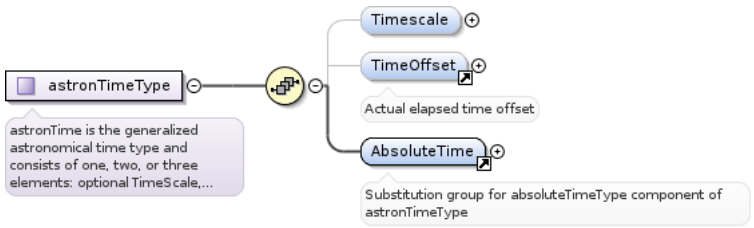
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:complexType name="timeCoordinateType">
  <xs:annotation>
    <xs:documentation>Time coordinate type; sibling of basicCoordinateType</
xs:documentation>
    <xs:documentation>Single Error, Resolution, Size, PixSize elements indicate definite
 values; pairs indicate ranges</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="coordinateType">
      <xs:sequence>
        <xs:element name="TimeInstant" type="astronTimeType" minOccurs="0"/>
        <xs:element ref="Error" minOccurs="0" maxOccurs="2"/>
        <xs:element ref="Resolution" minOccurs="0" maxOccurs="2"/>
        <xs:element ref="Size" minOccurs="0" maxOccurs="2"/>
        <xs:element ref="PixSize" minOccurs="0" maxOccurs="2"/>
      </xs:sequence>
      <xs:attribute name="coord_system_id" type="xs:IDREF" use="optional"/>
      <xs:attribute name="unit" type="timeUnitType" use="optional" default="s"/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Complex Type `astronTimeType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | astronTime is the generalized astronomical time type and consists of one, two, or three elements: optional TimeScale, optional relative time offset, and an absolute time (ISO8601 or a decimal JD or MJD; or it may be an IDREF to one of those three); TimeScale may be omitted only if the element is part of AstroCoords, referring to an AstroCoordSystem that specifies a TimeScale. |
| Diagram |  |
| Used by | Elements: orbitType/T, timeCoordinateType/TimeInstant, timeIntervalType/StartTime, timeIntervalType/StopTime |
| Model | Timescale{0,1} , TimeOffset{0,1} , AbsoluteTime |
| Children | AbsoluteTime, TimeOffset, Timescale |



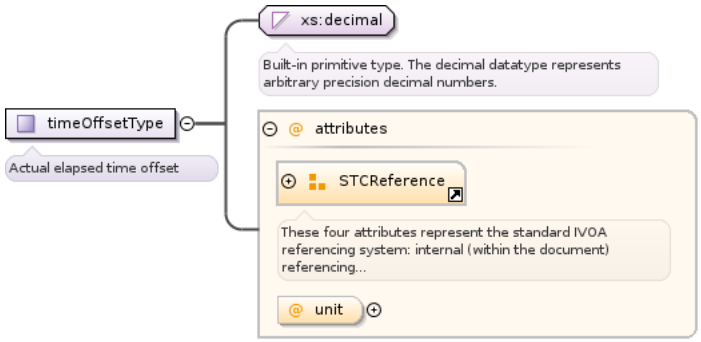
Source

```
<xs:complexType name="astronTimeType">
  <xs:annotation>
    <xs:documentation>astronTime is the generalized astronomical time type and consists
 of one, two, or three elements: optional TimeScale, optional relative time offset, and
 an absolute time (ISO8601 or a decimal JD or MJD; or it may be an IDREF to one of those
 three); TimeScale may be omitted only if the element is part of AstroCoords, referring to
 an AstroCoordSystem that specifies a TimeScale.</xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="Timescale" type="timeScaleType" nillable="true" minOccurs="0"/>
    <xs:element ref="TimeOffset" minOccurs="0"/>
    <xs:element ref="AbsoluteTime"/>
  </xs:sequence>
</xs:complexType>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Complex Type `timeOffsetType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Actual elapsed time offset |

| | |
|---|---|
| Diagram |  |
| Type | extension of xs:decimal |
| Used by | Element TimeOffset |

Attributes

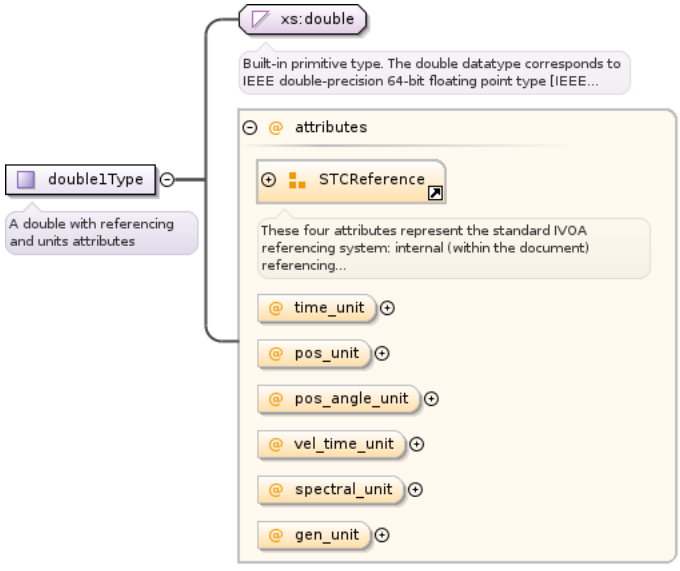
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | timeUnitType | | s | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:complexType name="timeOffsetType">
  <xs:annotation>
    <xs:documentation>Actual elapsed time offset</xs:documentation>
  </xs:annotation>
  <xs:simpleContent>
    <xs:extension base="xs:decimal">
      <xs:attributeGroup ref="STCReference"/>
      <xs:attribute name="unit" type="timeUnitType" use="optional" default="s"/>
    </xs:extension>
  </xs:simpleContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type `double1Type`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | A double with referencing and units attributes |
| Diagram |  |

| | |
|---|---|
| Type | extension of xs:double |
| Used by | Elements: Error, Error2Radius, Error3Radius, PixSize, Resolution, Resolution2Radius, Resolution3Radius, Size, Size2Radius, Size3Radius, Value, cart1DRefFrameType/Scale, circleType/Radius, coordScalarIntervalType/HiLimit, coordScalarIntervalType/LoLimit, double2Type/C1, double2Type/C2, double3Type/C1, double3Type/C2, double3Type/C3, ellipseType/SemiMajorAxis, ellipseType/SemiMinorAxis, orbitType/Aop, orbitType/M, orbitType/Node, orbitType/P, orbitType/a, orbitType/e, orbitType/i, orbitType/q, posScalarIntervalType/HiLimit, posScalarIntervalType/LoLimit, sphereType/Radius, uCoordScalarIntervalType/HiLimit, uCoordScalarIntervalType/LoLimit, velScalarIntervalType/HiLimit, velScalarIntervalType/LoLimit, velocitySphereType/Radius |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **pos_angle_unit** | angleUnitType | | | optional |
| **pos_unit** | posUnitType | | | optional |
| **spectral_unit** | spectralUnitType | | | optional |
| **time_unit** | timeUnitType | | | optional |
| **ucd** | xs:string | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

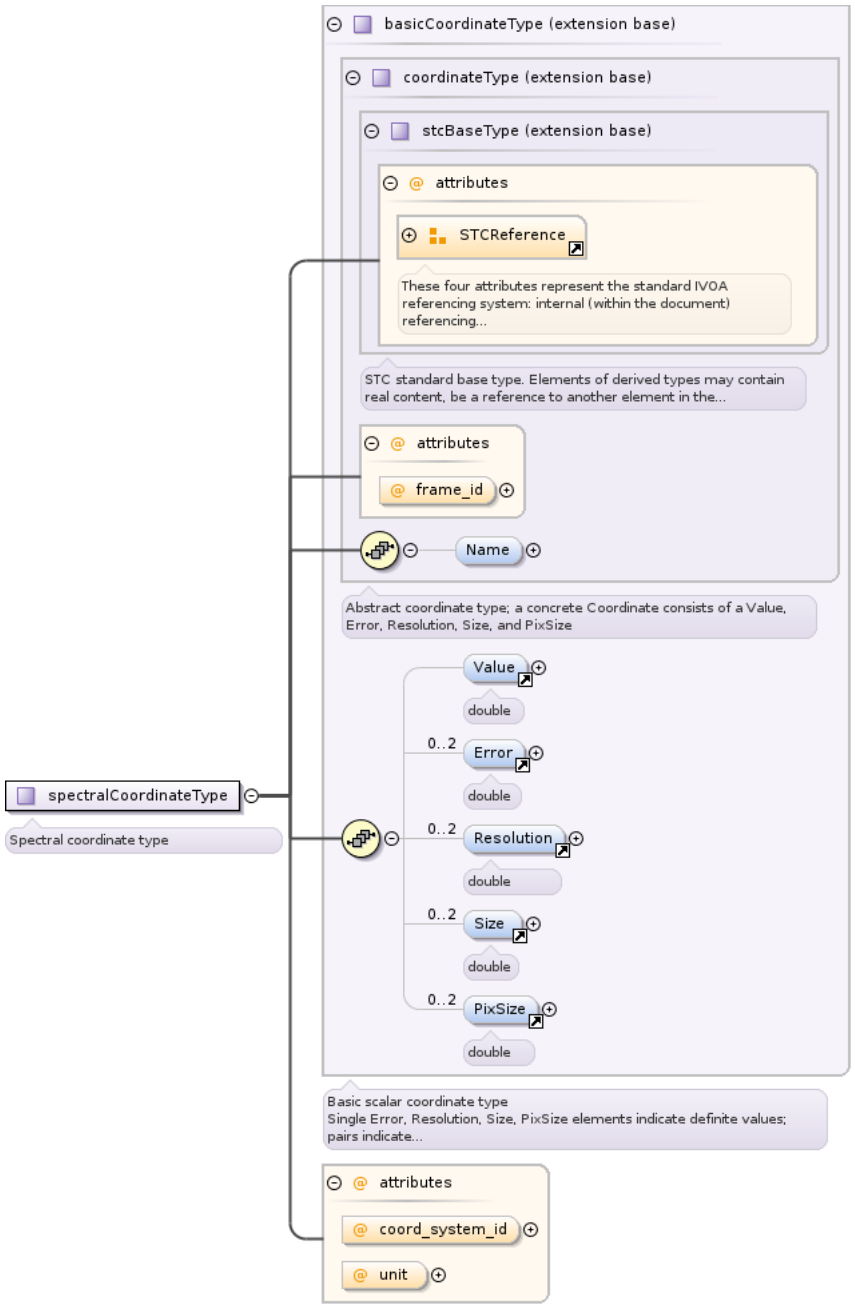
Source

```
<xs:complexType name="double1Type">
  <xs:annotation>
    <xs:documentation>A double with referencing and units attributes</xs:documentation>
  </xs:annotation>
  <xs:simpleContent>
    <xs:extension base="xs:double">
      <xs:attributeGroup ref="STCReference"/>
      <xs:attribute name="time_unit" type="timeUnitType" use="optional"/>
      <xs:attribute name="pos_unit" type="posUnitType" use="optional"/>
      <xs:attribute name="pos_angle_unit" type="angleUnitType" use="optional"/>
      <xs:attribute name="vel_time_unit" type="velTimeUnitType" use="optional"/>
      <xs:attribute name="spectral_unit" type="spectralUnitType" use="optional"/>
      <xs:attribute name="gen_unit" type="unitType" use="optional"/>
    </xs:extension>
  </xs:simpleContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type `spectralCoordinateType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Spectral coordinate type |

| | |
|---|---|
| Diagram |  |
| Type | extension of basicCoordinateType |
| Type hierarchy | • stcBaseType<br>• coordinateType<br>• basicCoordinateType<br>• spectralCoordinateType |
| Used by | Element Spectral |
| Model | Name{0,1} , Value{0,1} , Error{0,2} , Resolution{0,2} , Size{0,2} , PixSize{0,2} |
| Children | Error, Name, PixSize, Resolution, Size, Value |
| Attributes | |

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **frame_id** | xs:IDREF | | | optional |

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | spectralUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:complexType name="spectralCoordinateType">
  <xs:annotation>
    <xs:documentation>Spectral coordinate type</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="basicCoordinateType">
      <xs:attribute name="coord_system_id" type="xs:IDREF" use="optional"/>
      <xs:attribute name="unit" type="spectralUnitType" use="optional"/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Complex Type `basicCoordinateType`

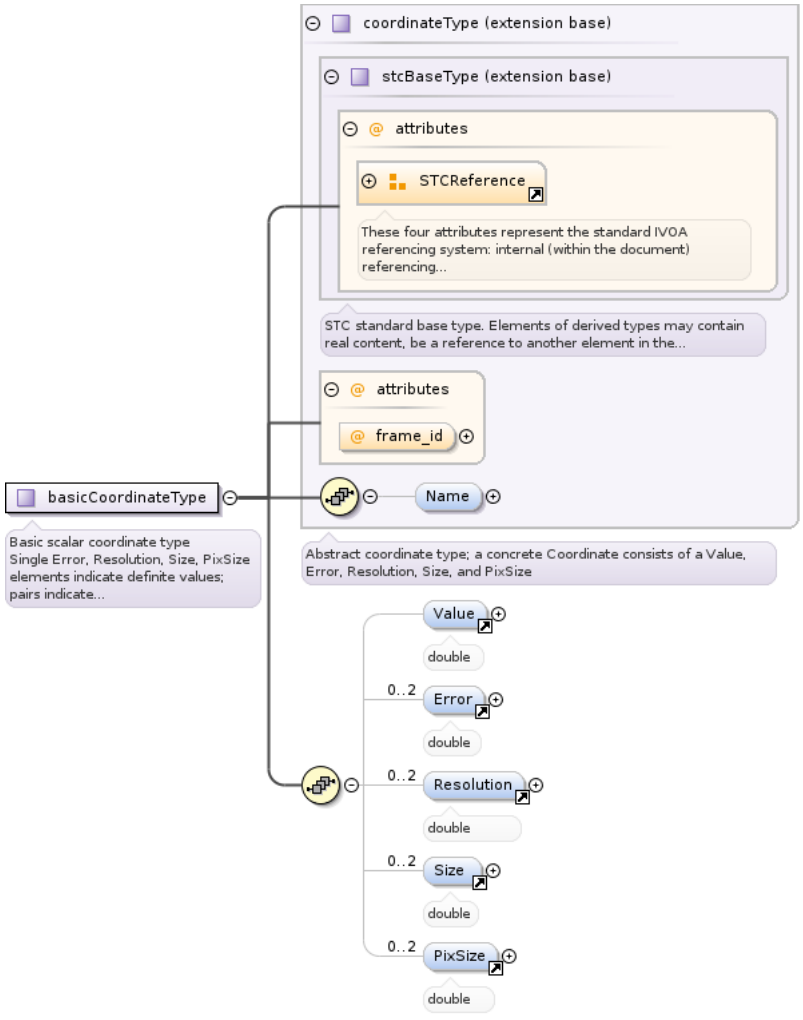
Namespace: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

Annotations:

```
Basic scalar coordinate type

Single Error, Resolution, Size, PixSize elements indicate definite values; pairs indicate
 ranges
```

Diagram



| | |
|---|---|
| Type | extension of coordinateType |
| Type hierarchy | • stcBaseType<br>  • coordinateType<br>  • basicCoordinateType |
| Used by | Complex Types posVector1CoordinateType, redshiftCoordinateType, scalarCoordinateType, spectralCoordinateType |
| Model | Name{0,1} , Value{0,1} , Error{0,2} , Resolution{0,2} , Size{0,2} , PixSize{0,2} |
| Children | Error, Name, PixSize, Resolution, Size, Value |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **frame_id** | xs:IDREF | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

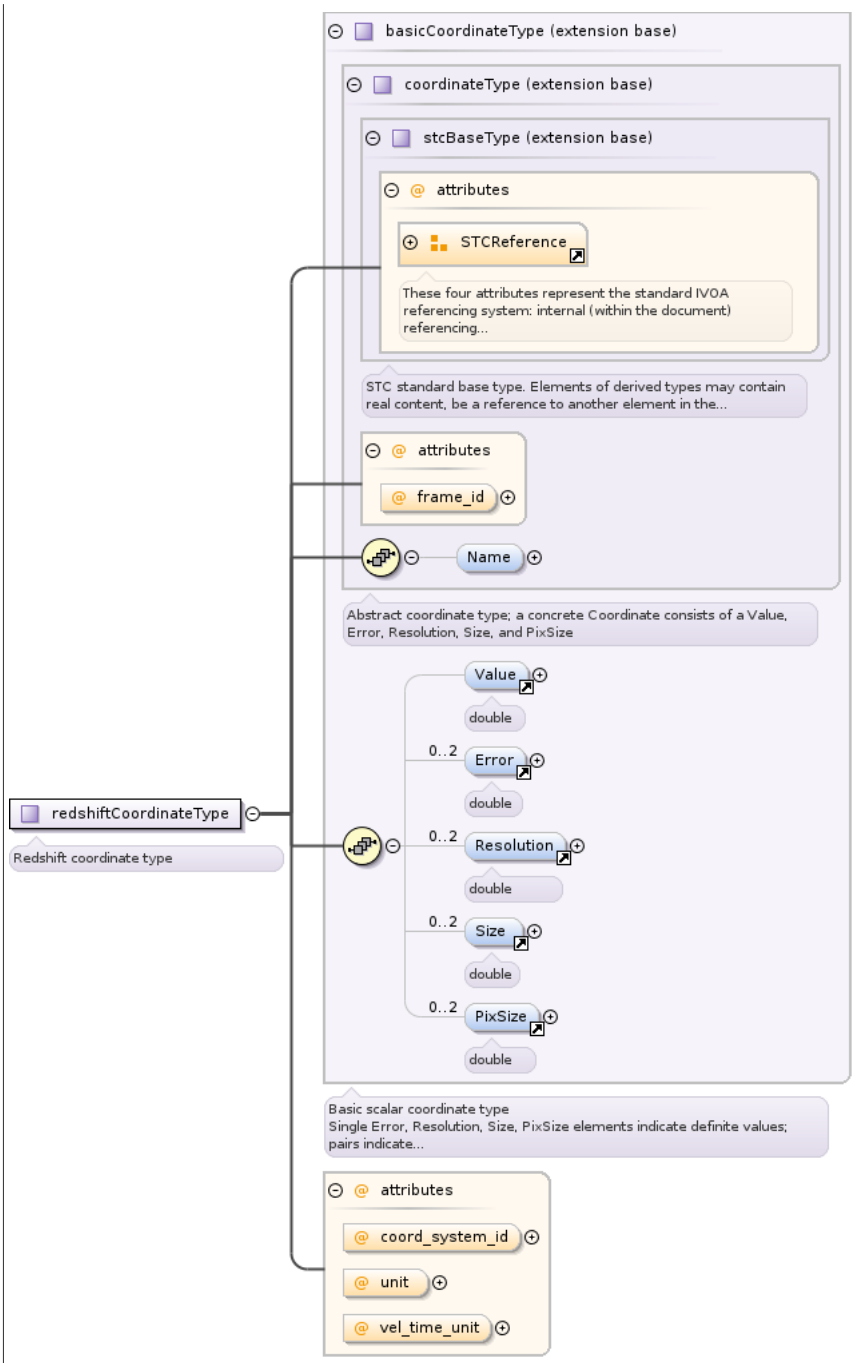
Source

```
<xs:complexType name="basicCoordinateType">
  <xs:annotation>
    <xs:documentation>Basic scalar coordinate type</xs:documentation>
    <xs:documentation>Single Error, Resolution, Size, PixSize elements indicate definite
 values; pairs indicate ranges</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="coordinateType">
      <xs:sequence>
        <xs:element ref="Value" minOccurs="0"/>
        <xs:element ref="Error" minOccurs="0" maxOccurs="2"/>
        <xs:element ref="Resolution" minOccurs="0" maxOccurs="2"/>
        <xs:element ref="Size" minOccurs="0" maxOccurs="2"/>
        <xs:element ref="PixSize" minOccurs="0" maxOccurs="2"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type `redshiftCoordinateType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Redshift coordinate type |

| | |
|---|---|
| Diagram |  |
| Type | extension of basicCoordinateType |
| Type hierarchy | • stcBaseType<br>• coordinateType<br>• basicCoordinateType<br>• redshiftCoordinateType |
| Used by | Element Redshift |
| Model | Name{0,1} , Value{0,1} , Error{0,2} , Resolution{0,2} , Size{0,2} , PixSize{0,2} |
| Children | Error, Name, PixSize, Resolution, Size, Value |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |

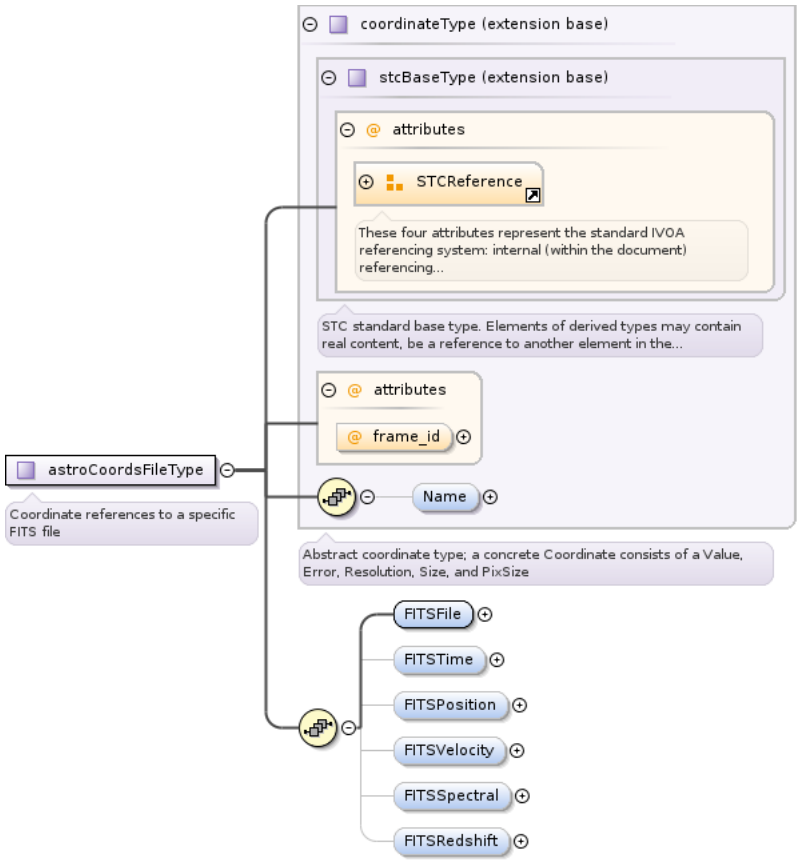
| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **coord_system_id** | xs:IDREF | | | optional |
| | **frame_id** | xs:IDREF | | | optional |
| | **id** | xs:ID | | | optional |
| | **idref** | xs:IDREF | | | optional |
| | **ucd** | xs:string | | | optional |
| | **unit** | posUnitType | | | optional |
| | **vel_time_unit** | velTimeUnitType | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:complexType name="redshiftCoordinateType">
  <xs:annotation>
    <xs:documentation>Redshift coordinate type</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="basicCoordinateType">
      <xs:attribute name="coord_system_id" type="xs:IDREF" use="optional"/>
      <xs:attribute name="unit" type="posUnitType" use="optional"/>
      <xs:attribute name="vel_time_unit" type="velTimeUnitType" use="optional"/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Complex Type `astroCoordsFileType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Coordinate references to a specific FITS file |
| Diagram |  |
| Type | extension of coordinateType |
| Type hierarchy | • stcBaseType<br>  • coordinateType |

| | |
|---|---|
| | • astroCoordsFileType |
| Used by | Element astroCoordsType/CoordFile |
| Model | Name{0,1} , FITSFile , FITSTime{0,1} , FITSPosition{0,1} , FITSVelocity{0,1} , FITSSpectral{0,1} , FITSRedshift{0,1} |
| Children | FITSFile, FITSPosition, FITSRedshift, FITSSpectral, FITSTime, FITSVelocity, Name |

Attributes

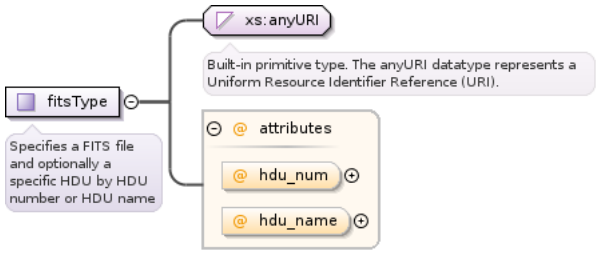
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **frame_id** | xs:IDREF | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:complexType name="astroCoordsFileType">
  <xs:annotation>
    <xs:documentation>Coordinate references to a specific FITS file</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="coordinateType">
      <xs:annotation>
        <xs:documentation>Coordinate references to a specific FITS file</xs:documentation>
      </xs:annotation>
      <xs:sequence>
        <xs:element name="FITSFile" type="fitsType"/>
        <xs:element name="FITSTime" type="coordFITSColumnsType" minOccurs="0"/>
        <xs:element name="FITSPosition" type="coordFITSColumnsType" minOccurs="0"/>
        <xs:element name="FITSVelocity" type="coordFITSColumnsType" minOccurs="0"/>
        <xs:element name="FITSSpectral" type="coordFITSColumnsType" minOccurs="0"/>
        <xs:element name="FITSRedshift" type="coordFITSColumnsType" minOccurs="0"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Complex Type `fitsType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Specifies a FITS file and optionally a specific HDU by HDU number or HDU name |
| Diagram |  |



| | |
|---|---|
| Type | extension of xs:anyURI |
| Used by | Element astroCoordsFileType/FITSFile |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **hdu_name** | xs:string | | | optional |
| **hdu_num** | xs:integer | | | optional |

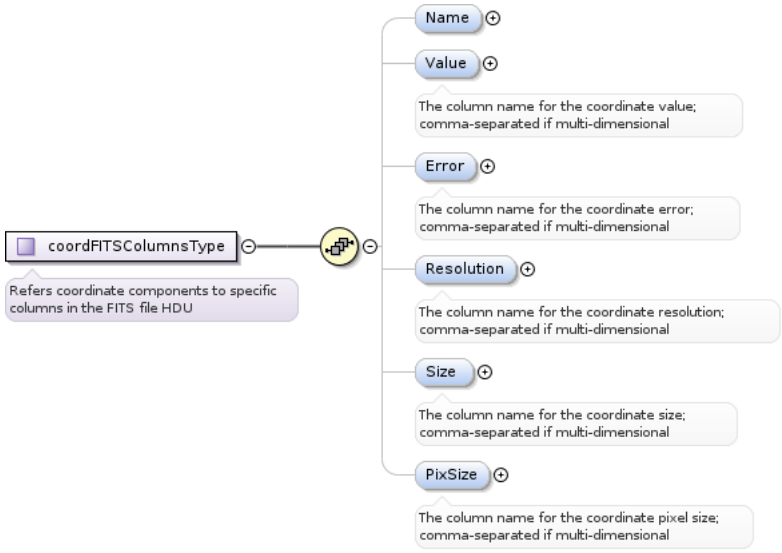
Source

```
<xs:complexType name="fitsType">
  <xs:annotation>
    <xs:documentation>Specifies a FITS file and optionally a specific HDU by HDU number or
 HDU name</xs:documentation>
  </xs:annotation>
  <xs:simpleContent>
    <xs:extension base="xs:anyURI">
```

```
      <xs:attribute name="hdu_num" type="xs:integer"/>
      <xs:attribute name="hdu_name" type="xs:string"/>
    </xs:extension>
  </xs:simpleContent>
</xs:complexType>
```

| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
|---|---|

## Complex Type `coordFITSColumnsType`

| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
|---|---|
| Annotations | `Refers coordinate components to specific columns in the FITS file HDU` |
| Diagram |  |
| Used by | Elements: astroCoordsFileType/FITSPosition, astroCoordsFileType/FITSRedshift, astroCoordsFileType/FITSSpectral, astroCoordsFileType/FITSTime, astroCoordsFileType/FITSVelocity |
| Model | Name{0,1} , Value{0,1} , Error{0,1} , Resolution{0,1} , Size{0,1} , PixSize{0,1} |
| Children | Error, Name, PixSize, Resolution, Size, Value |

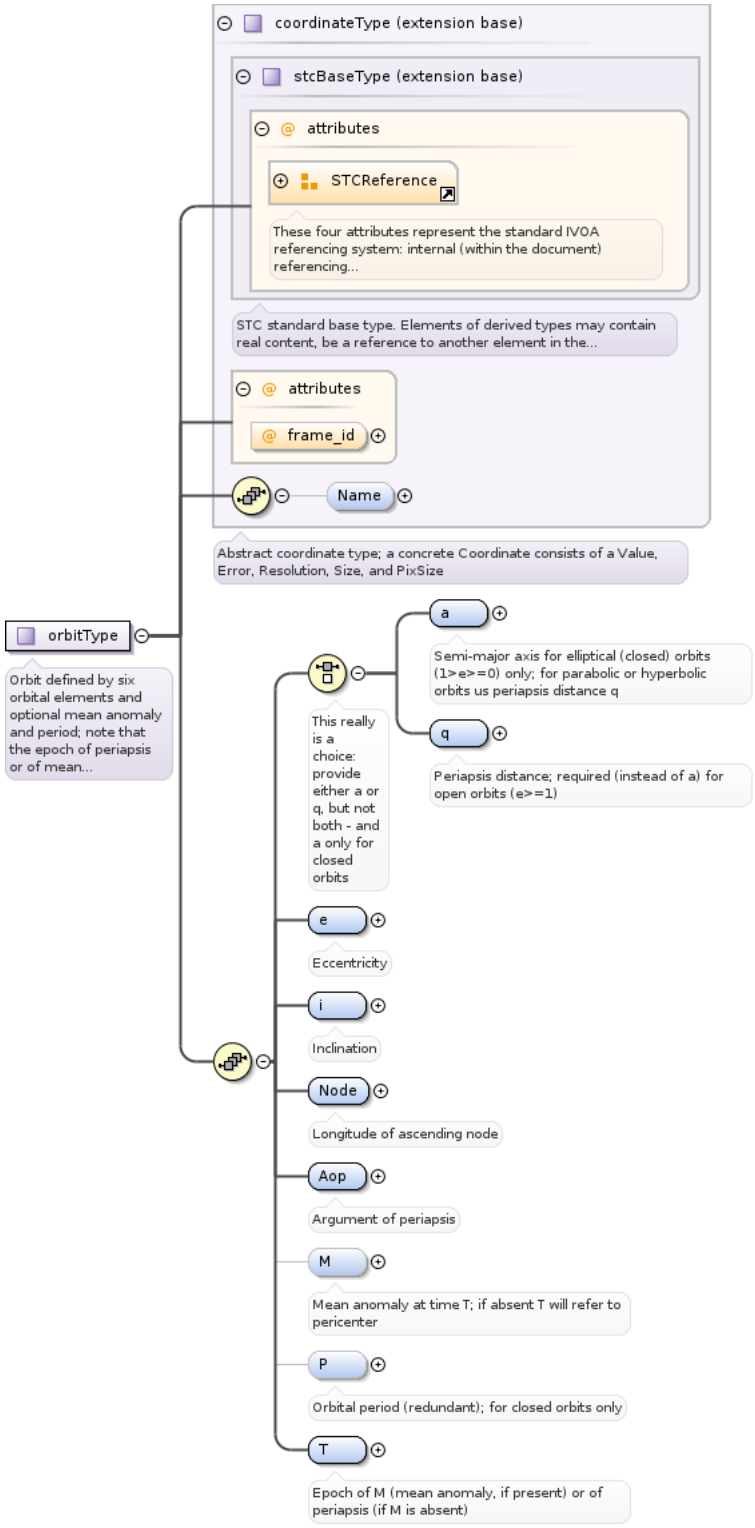


Source

```
<xs:complexType name="coordFITSColumnsType">
  <xs:annotation>
    <xs:documentation>Refers coordinate components to specific columns in the FITS file
 HDU</xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="Name" type="xs:string" minOccurs="0"/>
    <xs:element name="Value" type="xs:string" minOccurs="0">
      <xs:annotation>
        <xs:documentation>The column name for the coordinate value; comma-separated if
 multi-dimensional</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="Error" type="xs:string" minOccurs="0">
      <xs:annotation>
        <xs:documentation>The column name for the coordinate error; comma-separated if
 multi-dimensional</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="Resolution" type="xs:string" minOccurs="0">
      <xs:annotation>
        <xs:documentation>The column name for the coordinate resolution; comma-separated
 if multi-dimensional</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="Size" type="xs:string" minOccurs="0">
      <xs:annotation>
        <xs:documentation>The column name for the coordinate size; comma-separated if
 multi-dimensional</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="PixSize" type="xs:string" minOccurs="0">
      <xs:annotation>
        <xs:documentation>The column name for the coordinate pixel size; comma-separated
 if multi-dimensional</xs:documentation>
      </xs:annotation>
    </xs:element>
```

| | |
|---|---|
| | `</xs:sequence>`<br>`</xs:complexType>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type `orbitType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `Orbit defined by six orbital elements and optional mean anomaly and period; note that the epoch of periapsis or of mean anomaly is provided by T, however, an coordinate epoch should be provided by paring this element with a time instant element` |
| Diagram |  |
| Type | extension of coordinateType |

Type hierarchy

- stcBaseType
  - coordinateType
    - orbitType

Used by

Element astroCoordsType/Orbit

Model

Name{0,1} , (a | q) , e , i , Node , Aop , M{0,1} , P{0,1} , T

Children

Aop, M, Name, Node, P, T, a, e, i, q

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **frame_id** | xs:IDREF | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

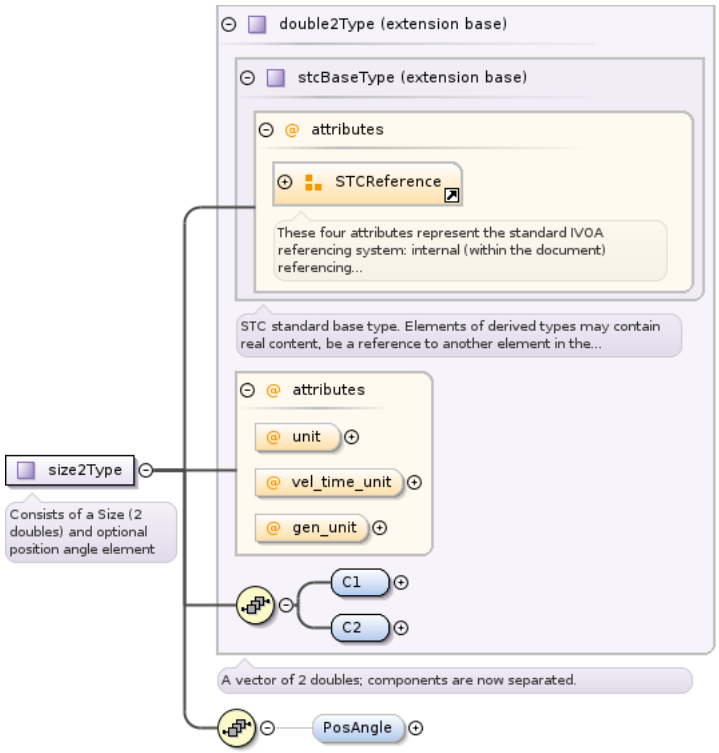
```
<xs:complexType name="orbitType">
  <xs:annotation>
    <xs:documentation>Orbit defined by six orbital elements and optional mean anomaly and
 period; note that the epoch of periapsis or of mean anomaly is provided by T, however, an
 coordinate epoch should be provided by paring this element with a time instant element</
xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="coordinateType">
      <xs:sequence>
        <xs:choice>
          <xs:annotation>
            <xs:documentation>This really is a choice: provide either a or q, but not both
 - and a only for closed orbits</xs:documentation>
          </xs:annotation>
          <xs:element name="a" nillable="true">
            <xs:annotation>
              <xs:documentation>Semi-major axis for elliptical (closed) orbits (1>e>=0)
 only; for parabolic or hyperbolic orbits us periapsis distance q</xs:documentation>
            </xs:annotation>
            <xs:complexType>
              <xs:complexContent>
                <xs:extension base="double1Type">
                  <xs:attribute name="unit" type="posUnitType" use="optional"
 default="AU"/>
                </xs:extension>
              </xs:complexContent>
            </xs:complexType>
          </xs:element>
          <xs:element name="q" nillable="true">
            <xs:annotation>
              <xs:documentation>Periapsis distance; required (instead of a) for open
 orbits (e>=1)</xs:documentation>
            </xs:annotation>
            <xs:complexType>
              <xs:complexContent>
                <xs:extension base="double1Type">
                  <xs:attribute name="unit" type="posUnitType" use="optional"
 default="AU"/>
                </xs:extension>
              </xs:complexContent>
            </xs:complexType>
          </xs:element>
        </xs:choice>
        <xs:element name="e" type="double1Type" nillable="true">
          <xs:annotation>
            <xs:documentation>Eccentricity</xs:documentation>
          </xs:annotation>
        </xs:element>
        <xs:element name="i" nillable="true">
          <xs:annotation>
            <xs:documentation>Inclination</xs:documentation>
          </xs:annotation>
          <xs:complexType>
```

```
            <xs:complexContent>
              <xs:extension base="double1Type">
                <xs:attribute name="unit" type="posUnitType" use="optional" default="deg"/
>
              </xs:extension>
            </xs:complexContent>
          </xs:complexType>
        </xs:element>
        <xs:element name="Node" nillable="true">
          <xs:annotation>
            <xs:documentation>Longitude of ascending node</xs:documentation>
          </xs:annotation>
          <xs:complexType>
            <xs:complexContent>
              <xs:extension base="double1Type">
                <xs:attribute name="unit" type="posUnitType" use="optional" default="deg"/
>
              </xs:extension>
            </xs:complexContent>
          </xs:complexType>
        </xs:element>
        <xs:element name="Aop" nillable="true">
          <xs:annotation>
            <xs:documentation>Argument of periapsis</xs:documentation>
          </xs:annotation>
          <xs:complexType>
            <xs:complexContent>
              <xs:extension base="double1Type">
                <xs:attribute name="unit" type="posUnitType" use="optional" default="deg"/
>
              </xs:extension>
            </xs:complexContent>
          </xs:complexType>
        </xs:element>
        <xs:element name="M" nillable="true" minOccurs="0">
          <xs:annotation>
            <xs:documentation>Mean anomaly at time T; if absent T will refer to
 pericenter</xs:documentation>
          </xs:annotation>
          <xs:complexType>
            <xs:complexContent>
              <xs:extension base="double1Type">
                <xs:attribute name="unit" type="posUnitType" use="optional" default="deg"/
>
              </xs:extension>
            </xs:complexContent>
          </xs:complexType>
        </xs:element>
        <xs:element name="P" nillable="true" minOccurs="0">
          <xs:annotation>
            <xs:documentation>Orbital period (redundant); for closed orbits only</
xs:documentation>
          </xs:annotation>
          <xs:complexType>
            <xs:complexContent>
              <xs:extension base="double1Type">
                <xs:attribute name="unit" type="timeUnitType" use="optional" default="d"/>
              </xs:extension>
            </xs:complexContent>
          </xs:complexType>
        </xs:element>
        <xs:element name="T" type="astronTimeType">
          <xs:annotation>
            <xs:documentation>Epoch of M (mean anomaly, if present) or of periapsis (if M
 is absent)</xs:documentation>
          </xs:annotation>
        </xs:element>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type `size2Type`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Consists of a Size (2 doubles) and optional position angle element |

| | |
|---|---|
| Diagram |  |
| Type | extension of double2Type |
| Type hierarchy | • stcBaseType<br>  • double2Type<br>  • size2Type |
| Used by | Elements Error2, PixSize2, Resolution2, Size2, Transform2 |
| Model | C1 , C2 , PosAngle{0,1} |
| Children | C1, C2, PosAngle |

Attributes

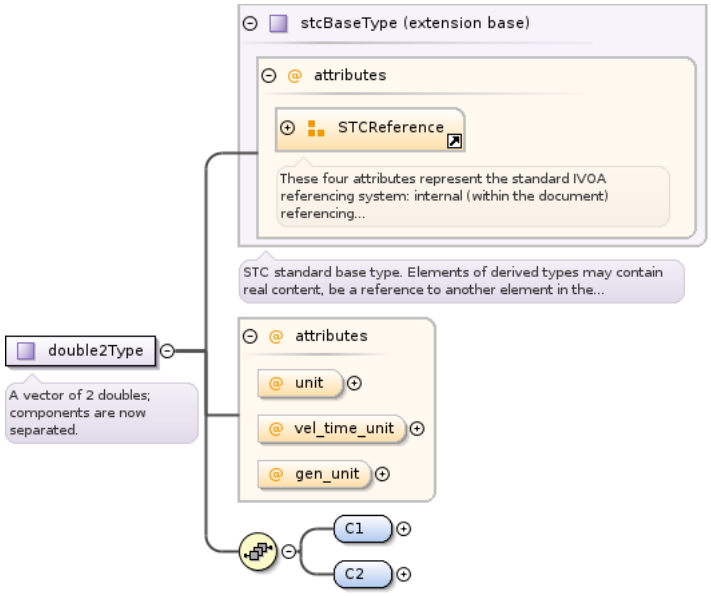
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:complexType name="size2Type">
  <xs:annotation>
    <xs:documentation>Consists of a Size (2 doubles) and optional position angle element</
xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="double2Type">
      <xs:sequence>
        <xs:element name="PosAngle" type="posAngleType" nillable="true" minOccurs="0"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type double2Type

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | A vector of 2 doubles; components are now separated. |
| Diagram |  |
| Type | extension of stcBaseType |
| Type hierarchy | • stcBaseType<br>  • double2Type |
| Used by | Complex Type: size2Type<br>Elements: Value2, boxType/Center, boxType/Size, circleType/Center, coord2VecIntervalType/HiLimit2Vec, coord2VecIntervalType/LoLimit2Vec, curve2Type/P1, curve2Type/P2, ellipseType/Center, pos2VecIntervalType/HiLimit2Vec, pos2VecIntervalType/LoLimit2Vec, sectorType/Position, smallCircleType/Pole, uCoord2VecIntervalType/HiLimit2Vec, uCoord2VecIntervalType/LoLimit2Vec, vel2VecIntervalType/HiLimit2Vec, vel2VecIntervalType/LoLimit2Vec, vertexType/Position |
| Model | C1 , C2 |
| Children | C1, C2 |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

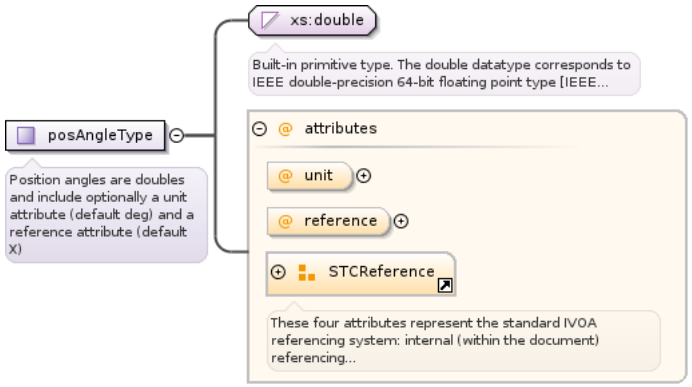
Source

```
<xs:complexType name="double2Type">
  <xs:annotation>
    <xs:documentation>A vector of 2 doubles; components are now separated.</
xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="stcBaseType">
      <xs:sequence>
        <xs:element name="C1" type="double1Type" nillable="true"/>
        <xs:element name="C2" type="double1Type" nillable="true"/>
      </xs:sequence>
```

```
      <xs:attribute name="unit" type="posUnitType" use="optional"/>
      <xs:attribute name="vel_time_unit" type="velTimeUnitType" use="optional"/>
      <xs:attribute name="gen_unit" type="unitType" use="optional"/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
|---|---|

## Complex Type posAngleType

| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
|---|---|
| Annotations | Position angles are doubles and include optionally a unit attribute (default deg) and a reference attribute (default X) |
| Diagram |  |



| Type | extension of xs:double |
|---|---|
| Used by | Elements: ellipseType/PosAngle, sectorType/PosAngle1, sectorType/PosAngle2, size2Type/PosAngle, size3Type/PosAngle1, size3Type/PosAngle2 |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **reference** | posAngleReference-Type | | X | optional |
| **ucd** | xs:string | | | optional |
| **unit** | angleUnitType | | deg | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

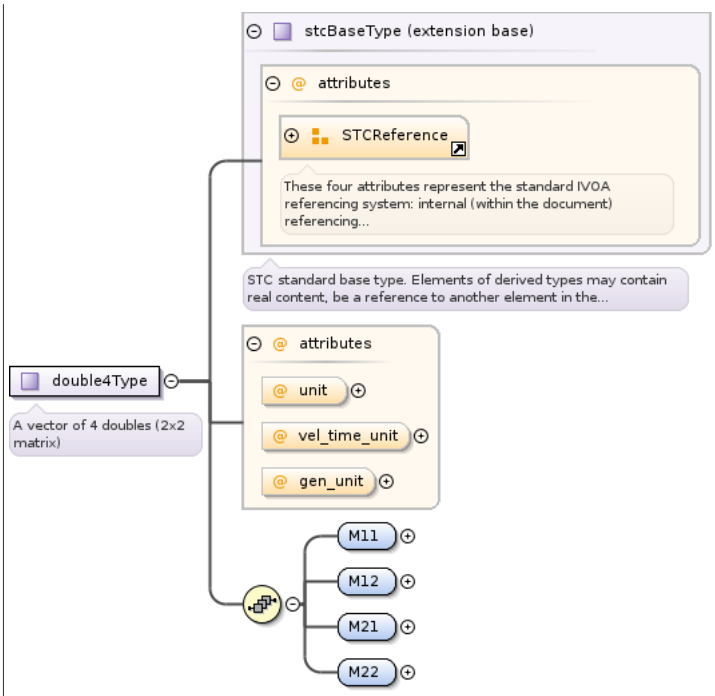
Source

```
<xs:complexType name="posAngleType">
  <xs:annotation>
    <xs:documentation>Position angles are doubles and include optionally a unit attribute
 (default deg) and a reference attribute (default X)</xs:documentation>
  </xs:annotation>
  <xs:simpleContent>
    <xs:extension base="xs:double">
      <xs:attribute name="unit" type="angleUnitType" default="deg"/>
      <xs:attribute name="reference" type="posAngleReferenceType" default="X"/>
      <xs:attributeGroup ref="STCReference"/>
    </xs:extension>
  </xs:simpleContent>
</xs:complexType>
```

| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
|---|---|

## Complex Type double4Type

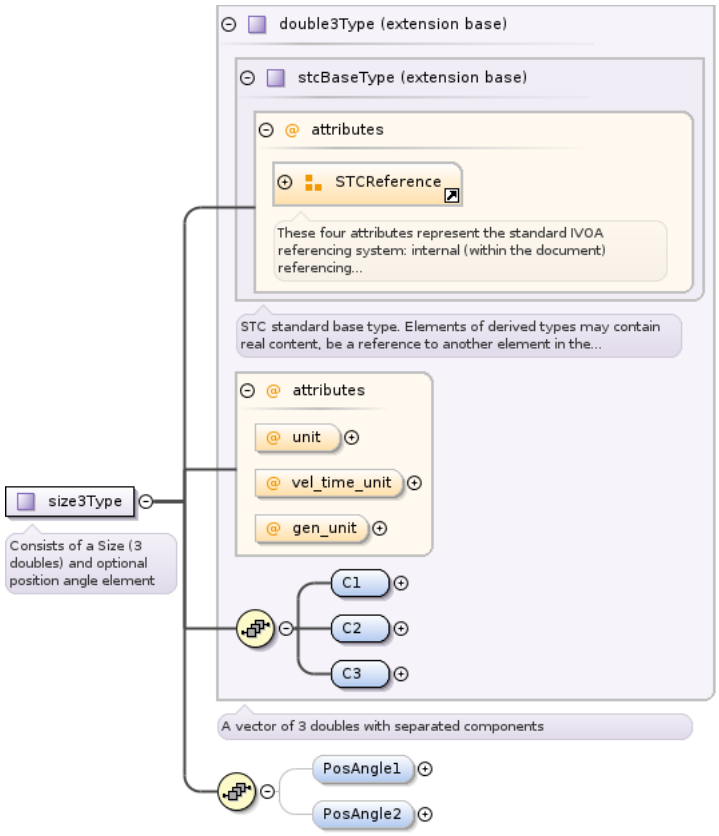
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
|---|---|
| Annotations | A vector of 4 doubles (2x2 matrix) |

<table>
<tr><td>Diagram</td><td> 
</td></tr>
<tr><td>Type</td><td>extension of stcBaseType</td></tr>
<tr><td>Type hierarchy</td><td>• stcBaseType<br>• double4Type</td></tr>
<tr><td>Used by</td><td>Elements Error2Matrix, PixSize2Matrix, Resolution2Matrix, Size2Matrix, Transform2Matrix</td></tr>
<tr><td>Model</td><td>M11 , M12 , M21 , M22</td></tr>
<tr><td>Children</td><td>M11, M12, M21, M22</td></tr>
<tr><td>Attributes</td><td>
<table>
<tr><th>QName</th><th>Type</th><th>Fixed</th><th>Default</th><th>Use</th></tr>
<tr><td>IDREF_type</td><td>xs:string</td><td></td><td></td><td>optional</td></tr>
<tr><td>ID_type</td><td>xs:string</td><td></td><td></td><td>optional</td></tr>
<tr><td>gen_unit</td><td>unitType</td><td></td><td></td><td>optional</td></tr>
<tr><td>id</td><td>xs:ID</td><td></td><td></td><td>optional</td></tr>
<tr><td>idref</td><td>xs:IDREF</td><td></td><td></td><td>optional</td></tr>
<tr><td>ucd</td><td>xs:string</td><td></td><td></td><td>optional</td></tr>
<tr><td>unit</td><td>posUnitType</td><td></td><td></td><td>optional</td></tr>
<tr><td>vel_time_unit</td><td>velTimeUnitType</td><td></td><td></td><td>optional</td></tr>
<tr><td>xlink:href</td><td>xs:anyURI</td><td></td><td></td><td>optional</td></tr>
<tr><td>xlink:type</td><td>restriction of xs:NMTOKEN</td><td></td><td>simple</td><td>optional</td></tr>
</table>
</td></tr>
<tr><td>Source</td><td>

```
<xs:complexType name="double4Type">
  <xs:annotation>
    <xs:documentation>A vector of 4 doubles (2x2 matrix)</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="stcBaseType">
      <xs:sequence>
        <xs:element name="M11" type="xs:double" nillable="true"/>
        <xs:element name="M12" type="xs:double" nillable="true"/>
        <xs:element name="M21" type="xs:double" nillable="true"/>
        <xs:element name="M22" type="xs:double" nillable="true"/>
      </xs:sequence>
      <xs:attribute name="unit" type="posUnitType" use="optional"/>
      <xs:attribute name="vel_time_unit" type="velTimeUnitType" use="optional"/>
      <xs:attribute name="gen_unit" type="unitType" use="optional"/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

</td></tr>
<tr><td>Schema location</td><td>http://www.ivoa.net/xml/STC/stc-v1.30.xsd</td></tr>
</table>

## Complex Type `size3Type`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `Consists of a Size (3 doubles) and optional position angle element` |
| Diagram |  |
| Type | extension of double3Type |
| Type hierarchy | • stcBaseType<br>  • double3Type<br>  • size3Type |
| Used by | Elements Error3, PixSize3, Resolution3, Size3, Transform3 |
| Model | C1 , C2 , C3 , PosAngle1{0,1} , PosAngle2{0,1} |
| Children | C1, C2, C3, PosAngle1, PosAngle2 |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

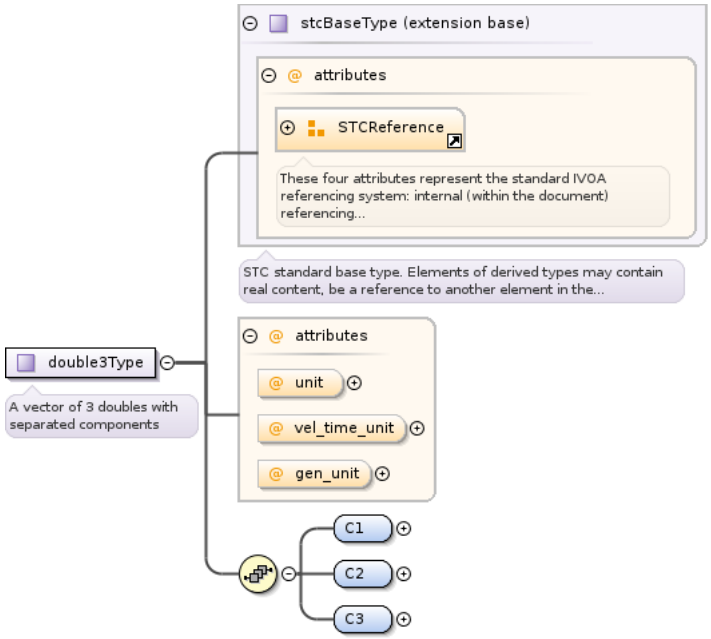
Source

```
<xs:complexType name="size3Type">
  <xs:annotation>
    <xs:documentation>Consists of a Size (3 doubles) and optional position angle element</
xs:documentation>
  </xs:annotation>
```

```
  <xs:complexContent>
    <xs:extension base="double3Type">
      <xs:sequence>
        <xs:element name="PosAngle1" type="posAngleType" nillable="true" minOccurs="0"/>
        <xs:element name="PosAngle2" type="posAngleType" nillable="true" minOccurs="0"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type double3Type

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | A vector of 3 doubles with separated components |
| Diagram |  |



| | |
|---|---|
| Type | extension of stcBaseType |
| Type hierarchy | • stcBaseType<br>  • double3Type |

Used by

| Complex Type | size3Type |
|---|---|
| Elements | Value3, convexHullType/Point, coord3VecIntervalType/HiLimit3Vec, coord3VecIntervalType/LoLimit3Vec, curve3Type/P1, curve3Type/P2, halfspace-Type/Vector, pos3VecIntervalType/HiLimit3Vec, pos3VecIntervalType/LoLimit3Vec, sphereType/Center, uCoord3VecIntervalType/HiLimit3Vec, uCoord3VecIntervalType/LoLimit3Vec, vel3VecIntervalType/HiLimit3Vec, vel3VecIntervalType/LoLimit3Vec, velocitySphereType/Center |

| | |
|---|---|
| Model | C1 , C2 , C3 |
| Children | C1, C2, C3 |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |

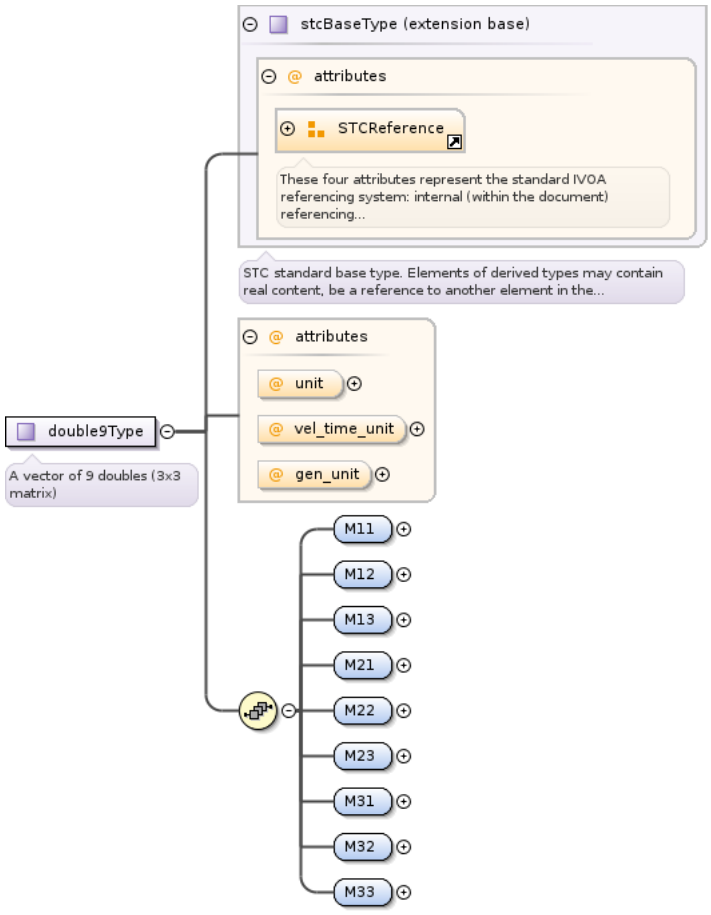
| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:complexType name="double3Type">
  <xs:annotation>
    <xs:documentation>A vector of 3 doubles with separated components</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="stcBaseType">
      <xs:sequence>
        <xs:element name="C1" type="double1Type" nillable="true"/>
        <xs:element name="C2" type="double1Type" nillable="true"/>
        <xs:element name="C3" type="double1Type" nillable="true"/>
      </xs:sequence>
      <xs:attribute name="unit" type="posUnitType" use="optional"/>
      <xs:attribute name="vel_time_unit" type="velTimeUnitType" use="optional"/>
      <xs:attribute name="gen_unit" type="unitType" use="optional"/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Complex Type double9Type

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | A vector of 9 doubles (3x3 matrix) |
| Diagram |  |
| Type | extension of stcBaseType |
| Type hierarchy | • stcBaseType<br>  • double9Type |
| Used by | Elements Error3Matrix, PixSize3Matrix, Resolution3Matrix, Size3Matrix, Transform3Matrix |
| Model | M11 , M12 , M13 , M21 , M22 , M23 , M31 , M32 , M33 |
| Children | M11, M12, M13, M21, M22, M23, M31, M32, M33 |

Attributes

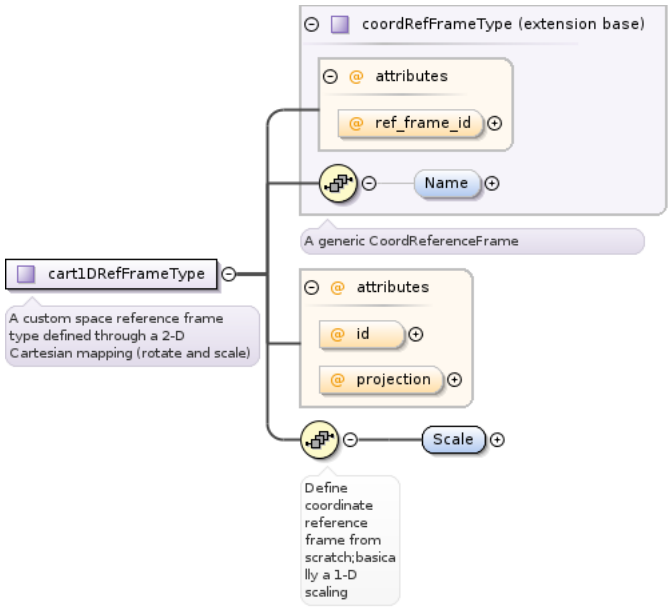
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **gen_unit** | unitType | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:complexType name="double9Type">
  <xs:annotation>
    <xs:documentation>A vector of 9 doubles (3x3 matrix)</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="stcBaseType">
      <xs:sequence>
        <xs:element name="M11" type="xs:double" nillable="true"/>
        <xs:element name="M12" type="xs:double" nillable="true"/>
        <xs:element name="M13" type="xs:double" nillable="true"/>
        <xs:element name="M21" type="xs:double" nillable="true"/>
        <xs:element name="M22" type="xs:double" nillable="true"/>
        <xs:element name="M23" type="xs:double" nillable="true"/>
        <xs:element name="M31" type="xs:double" nillable="true"/>
        <xs:element name="M32" type="xs:double" nillable="true"/>
        <xs:element name="M33" type="xs:double" nillable="true"/>
      </xs:sequence>
      <xs:attribute name="unit" type="posUnitType" use="optional"/>
      <xs:attribute name="vel_time_unit" type="velTimeUnitType" use="optional"/>
      <xs:attribute name="gen_unit" type="unitType" use="optional"/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

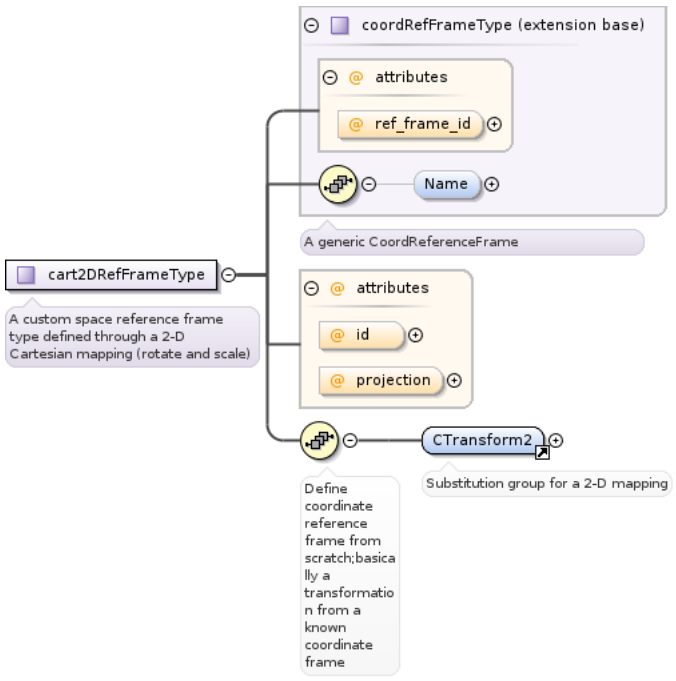
Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Complex Type `cart1DRefFrameType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | A custom space reference frame type defined through a 2-D Cartesian mapping (rotate and scale) |
| Diagram |  |
| Type | extension of coordRefFrameType |

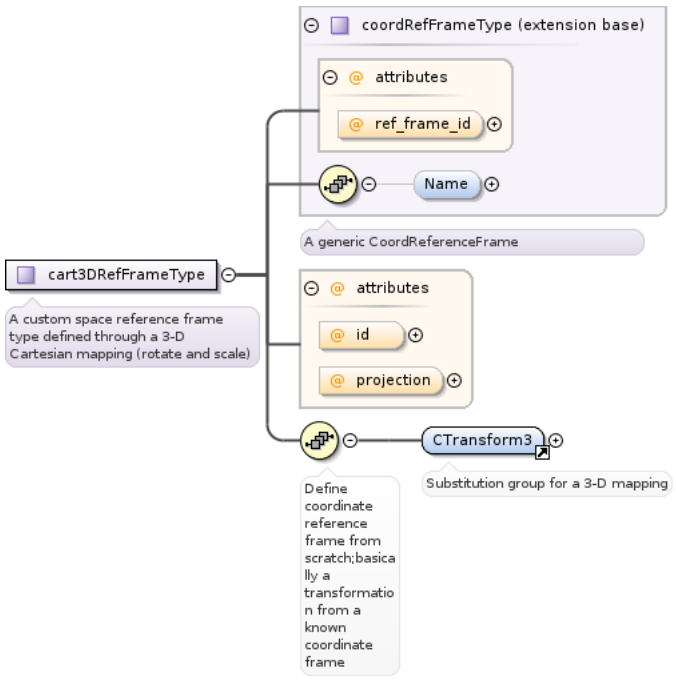
| | |
|---|---|
| Type hierarchy | • coordRefFrameType<br>  • cart1DRefFrameType |
| Used by | Elements Cart1DSpaceRefFrame, ScalarRefFrame |
| Model | Name{0,1} , Scale |
| Children | Name, Scale |
| Attributes | **QName** **Type** **Fixed** **Default** **Use**<br>**id** xs:ID optional<br>**projection** projectionType optional<br>**ref_frame_id** xs:IDREF optional |
| Source | `<xs:complexType name="cart1DRefFrameType">`<br>`  <xs:annotation>`<br>`  <xs:documentation>A custom space reference frame type defined through a 2-D Cartesian mapping (rotate and scale)</xs:documentation>`<br>`  </xs:annotation>`<br>`  <xs:complexContent>`<br>`  <xs:extension base="coordRefFrameType">`<br>`  <xs:sequence>`<br>`  <xs:annotation>`<br>`  <xs:documentation>Define coordinate reference frame from scratch;basically a 1-D scaling</xs:documentation>`<br>`  </xs:annotation>`<br>`  <xs:element name="Scale" type="double1Type" nillable="true"/>`<br>`  </xs:sequence>`<br>`  <xs:attribute name="id" type="xs:ID" use="optional"/>`<br>`  <xs:attribute name="projection" type="projectionType" use="optional" default=""/>`<br>`  </xs:extension>`<br>`  </xs:complexContent>`<br>`</xs:complexType>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type `cart2DRefFrameType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `A custom space reference frame type defined through a 2-D Cartesian mapping (rotate and scale)` |
| Diagram |  |
| Type | extension of coordRefFrameType |
| Type hierarchy | • coordRefFrameType<br>  • cart2DRefFrameType |

| | |
|---|---|
| Used by | Elements Cart2DRefFrame, Cart2DSpaceRefFrame |
| Model | Name{0,1} , CTransform2 |
| Children | CTransform2, Name |
| Attributes | **QName** **Type** **Fixed** **Default** **Use**<br>**id** xs:ID optional<br>**projection** projectionType optional<br>**ref_frame_id** xs:IDREF optional |
| Source | <xs:complexType name="cart2DRefFrameType"><br><xs:annotation><br><xs:documentation>A custom space reference frame type defined through a 2-D Cartesian mapping (rotate and scale)</xs:documentation><br></xs:annotation><br><xs:complexContent><br><xs:extension base="coordRefFrameType"><br><xs:sequence><br><xs:annotation><br><xs:documentation>Define coordinate reference frame from scratch;basically a transformation from a known coordinate frame</xs:documentation><br></xs:annotation><br><xs:element ref="CTransform2"/><br></xs:sequence><br><xs:attribute name="id" type="xs:ID" use="optional"/><br><xs:attribute name="projection" type="projectionType" use="optional" default=""/><br></xs:extension><br></xs:complexContent><br></xs:complexType> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type `cart3DRefFrameType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | A custom space reference frame type defined through a 3-D Cartesian mapping (rotate and scale) |
| Diagram |  |
| Type | extension of coordRefFrameType |
| Type hierarchy | • coordRefFrameType<br>  • cart3DRefFrameType |
| Used by | Elements Cart3DRefFrame, Cart3DSpaceRefFrame |
| Model | Name{0,1} , CTransform3 |
| Children | CTransform3, Name |

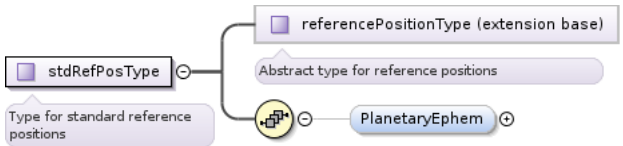
| | | | | | |
|---|---|---|---|---|---|
| Attributes | **QName** | **Type** | **Fixed** | **Default** | **Use** |
| | **id** | xs:ID | | | optional |
| | **projection** | projectionType | | | optional |
| | **ref_frame_id** | xs:IDREF | | | optional |

Source

```
<xs:complexType name="cart3DRefFrameType">
  <xs:annotation>
    <xs:documentation>A custom space reference frame type defined through a 3-D Cartesian
 mapping (rotate and scale)</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="coordRefFrameType">
      <xs:sequence>
        <xs:annotation>
          <xs:documentation>Define coordinate reference frame from scratch;basically a
 transformation from a known coordinate frame</xs:documentation>
        </xs:annotation>
        <xs:element ref="CTransform3"/>
      </xs:sequence>
      <xs:attribute name="id" type="xs:ID" use="optional"/>
      <xs:attribute name="projection" type="projectionType" use="optional" default=""/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Complex Type `stdRefPosType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Type for standard reference positions |
| Diagram |  |
| Type | extension of referencePositionType |
| Type hierarchy | • referencePositionType<br>  • stdRefPosType |
| Used by | Elements: BARYCENTER, EMBARYCENTER, GALACTIC_CENTER, GEOCENTER, HELIOCENTER, JUPITER, LOCAL_GROUP_CENTER, LSR, LSRD, LSRK, MARS, MERCURY, MOON, NEPTUNE, PLUTO, RELOCATABLE, SATURN, TOPOCENTER, UNKNOWNRefPos, URANUS, VENUS |
| Model | PlanetaryEphem{0,1} |
| Children | PlanetaryEphem |



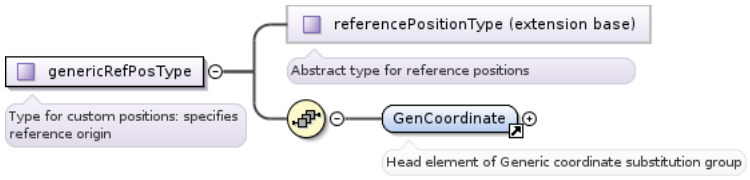
Source

```
<xs:complexType name="stdRefPosType">
  <xs:annotation>
    <xs:documentation>Type for standard reference positions</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="referencePositionType">
      <xs:sequence>
        <xs:element name="PlanetaryEphem" type="planetaryEphemType" nillable="true"
 minOccurs="0"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

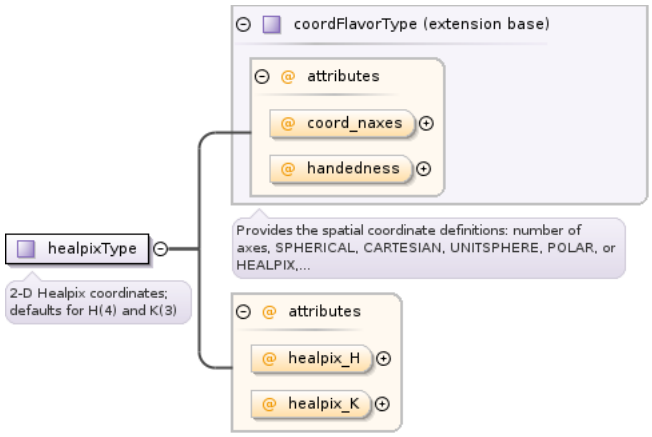
Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Complex Type `genericRefPosType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Type for custom positions: specifies reference origin |

| | |
|---|---|
| Diagram |  |
| Type | extension of referencePositionType |
| Type hierarchy | • referencePositionType<br>• genericRefPosType |
| Model | GenCoordinate |
| Children | GenCoordinate |
| Source | <xs:complexType name="genericRefPosType"><br><xs:annotation><br><xs:documentation>Type for custom positions: specifies reference origin</xs:documentation><br></xs:annotation><br><xs:complexContent><br><xs:extension base="referencePositionType"><br><xs:sequence><br><xs:element ref="GenCoordinate"/><br></xs:sequence><br></xs:extension><br></xs:complexContent><br></xs:complexType> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type healpixType

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | 2-D Healpix coordinates; defaults for H(4) and K(3) |
| Diagram |  |
| Type | extension of coordFlavorType |
| Type hierarchy | • coordFlavorType<br>• healpixType |
| Used by | Element HEALPIX |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **coord_naxes** | restriction of xs:integer | | 2 | optional |
| **handedness** | restriction of xs:string | | | optional |
| **healpix_H** | xs:integer | | 4 | optional |
| **healpix_K** | xs:integer | | 3 | optional |

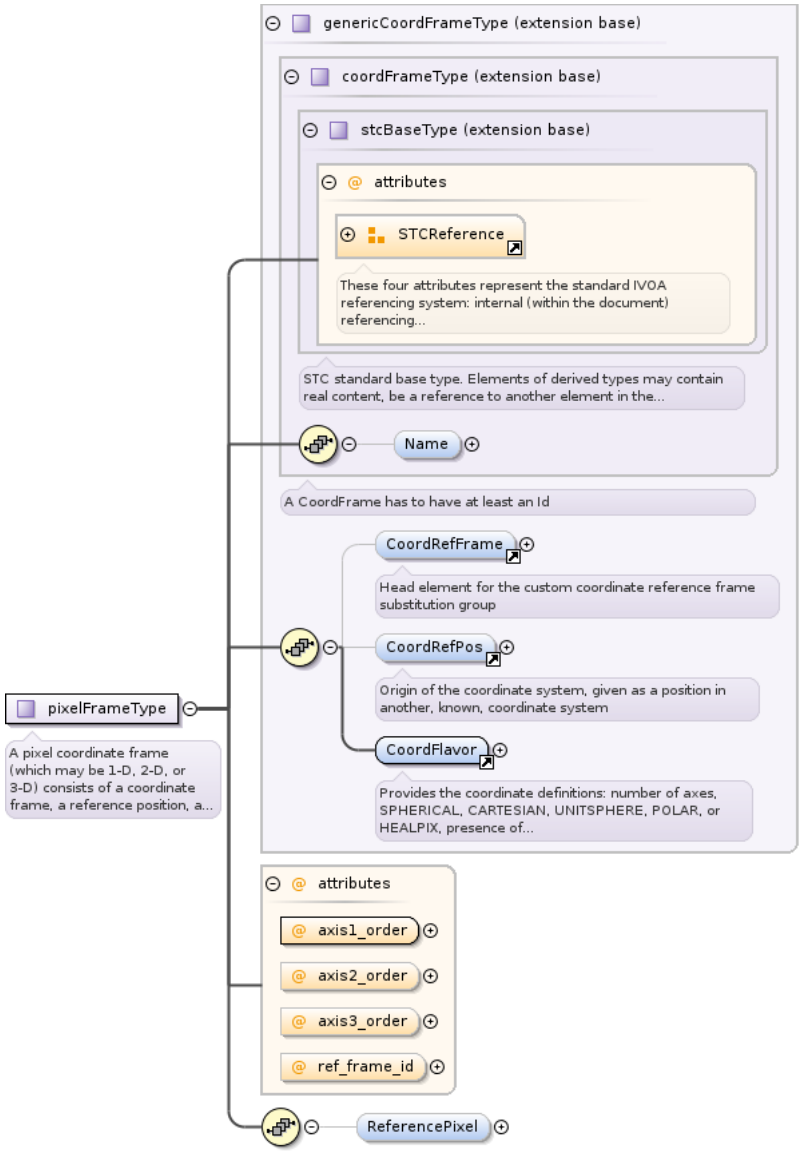
Source

```
<xs:complexType name="healpixType">
  <xs:annotation>
    <xs:documentation>2-D Healpix coordinates; defaults for H(4) and K(3)</
xs:documentation>
  </xs:annotation>
```

```
  <xs:complexContent>
    <xs:extension base="coordFlavorType">
      <xs:attribute name="healpix_H" type="xs:integer" default="4"/>
      <xs:attribute name="healpix_K" type="xs:integer" default="3"/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type `pixelFrameType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | A pixel coordinate frame (which may be 1-D, 2-D, or 3-D) consists of a coordinate frame, a reference position, a flavor, a reference pixel array and the order in which the pixel axes appear in the pixel array |
| Diagram |  |
| Type | extension of genericCoordFrameType |
| Type hierarchy | • stcBaseType<br>  • coordFrameType<br>  • genericCoordFrameType<br>  • pixelFrameType |
| Used by | Element PixelCoordFrame |
| Model | Name{0,1} , CoordRefFrame{0,1} , CoordRefPos{0,1} , CoordFlavor , ReferencePixel{0,1} |

| | |
|---|---|
| Children | CoordFlavor, CoordRefFrame, CoordRefPos, Name, ReferencePixel |
| Attributes | |

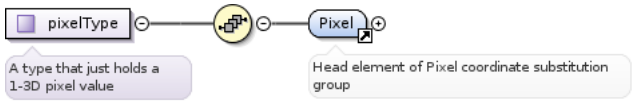
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **axis1_order** | xs:integer | | | required |
| **axis2_order** | xs:integer | | | optional |
| **axis3_order** | xs:integer | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ref_frame_id** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:complexType name="pixelFrameType">
  <xs:annotation>
    <xs:documentation>A pixel coordinate frame (which may be 1-D, 2-D, or 3-D) consists of
 a coordinate frame, a reference position, a flavor, a reference pixel array and the order
 in which the pixel axes appear in the pixel array</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="genericCoordFrameType">
      <xs:sequence>
        <xs:element name="ReferencePixel" type="pixelType" nillable="true" minOccurs="0"/>
      </xs:sequence>
      <xs:attribute name="axis1_order" type="xs:integer" use="required"/>
      <xs:attribute name="axis2_order" type="xs:integer"/>
      <xs:attribute name="axis3_order" type="xs:integer"/>
      <xs:attribute name="ref_frame_id" type="xs:IDREF"/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type `pixelType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | A type that just holds a 1-3D pixel value |
| Diagram |  |
| Used by | Element pixelFrameType/ReferencePixel |
| Model | Pixel |
| Children | Pixel |



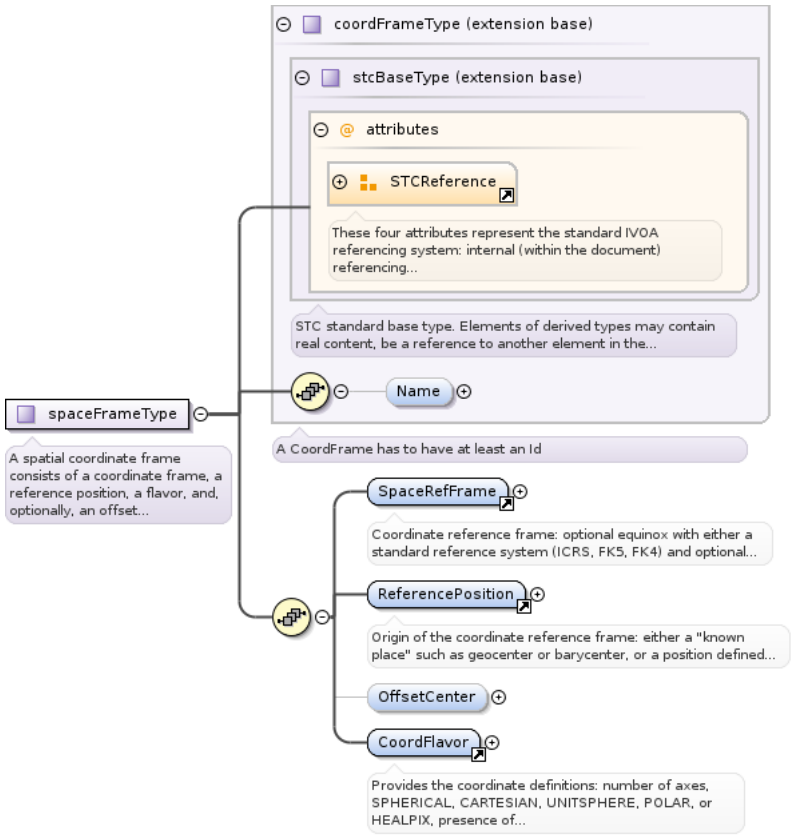
Source

```
<xs:complexType name="pixelType">
  <xs:annotation>
    <xs:documentation>A type that just holds a 1-3D pixel value</xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element ref="Pixel"/>
  </xs:sequence>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type `spaceFrameType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | A spatial coordinate frame consists of a coordinate frame, a reference position, a flavor, and, optionally, an offset center |

| | |
|---|---|
| Diagram |  |
| Type | extension of coordFrameType |
| Type hierarchy | • stcBaseType<br>  • coordFrameType<br>  • spaceFrameType |
| Used by | Element SpaceFrame |
| Model | Name{0,1} , SpaceRefFrame , ReferencePosition , OffsetCenter{0,1} , CoordFlavor |
| Children | CoordFlavor, Name, OffsetCenter, ReferencePosition, SpaceRefFrame |

Attributes

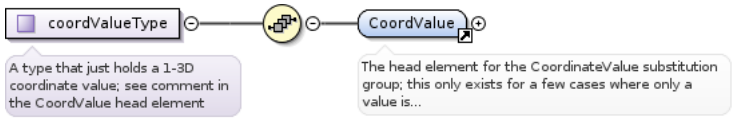
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:complexType name="spaceFrameType">
  <xs:annotation>
    <xs:documentation>A spatial coordinate frame consists of a coordinate frame, a
 reference position, a flavor, and, optionally, an offset center</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="coordFrameType">
      <xs:sequence>
        <xs:element ref="SpaceRefFrame">
          <xs:annotation>
            <xs:documentation>Coordinate reference frame: optional equinox with either
 a standard reference system (ICRS, FK5, FK4) and optional standard pole (equatorial,
 ecliptic, galactic, etc.), or pole (positive Z-axis) and positive X-axis direction</
xs:documentation>
          </xs:annotation>
        </xs:element>
```

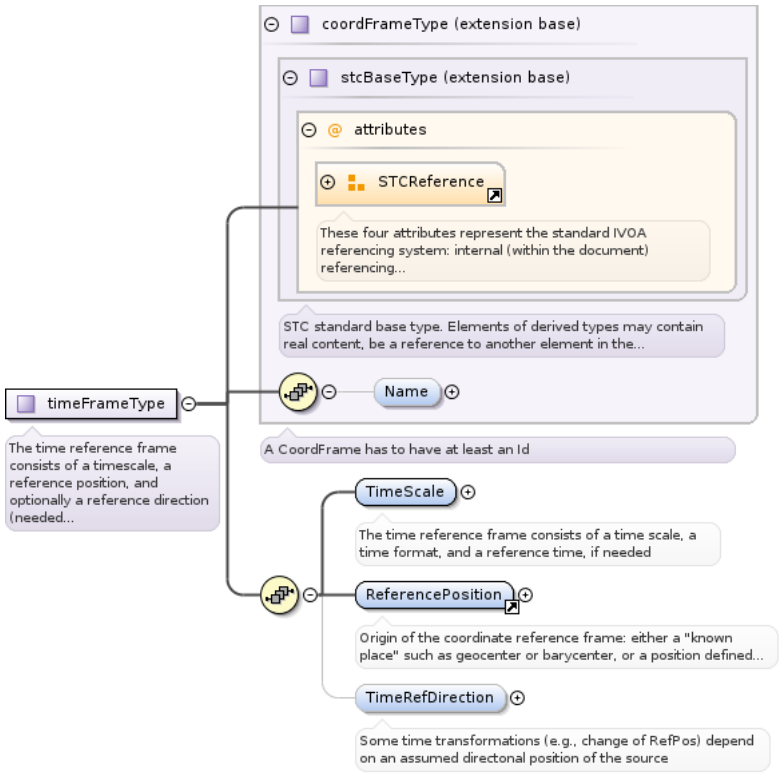
| | |
|---|---|
| | <xs:element ref="ReferencePosition"><br><xs:annotation><br><xs:documentation>Origin of the coordinate reference frame: either a "known place" such as geocenter or barycenter, or a position defined in a known coordinate system</xs:documentation><br></xs:annotation><br></xs:element><br><xs:element name="OffsetCenter" type="coordValueType" minOccurs="0"/><br><xs:element ref="CoordFlavor"><br><xs:annotation><br><xs:documentation>Provides the coordinate definitions: number of axes, SPHERICAL, CARTESIAN, UNITSPHERE, POLAR, or HEALPIX, presence of velocities</xs:documentation><br></xs:annotation><br></xs:element><br></xs:sequence><br></xs:extension><br></xs:complexContent><br></xs:complexType> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type `coordValueType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | A type that just holds a 1-3D coordinate value; see comment in the CoordValue head element |
| Diagram |  |
| Used by | Element spaceFrameType/OffsetCenter |
| Model | CoordValue |
| Children | CoordValue |
| Source | <xs:complexType name="coordValueType"><br><xs:annotation><br><xs:documentation>A type that just holds a 1-3D coordinate value; see comment in the CoordValue head element</xs:documentation><br></xs:annotation><br><xs:sequence><br><xs:element ref="CoordValue"/><br></xs:sequence><br></xs:complexType> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type `timeFrameType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The time reference frame consists of a timescale, a reference position, and optionally a reference direction (needed when transformations have been applied) |

| | |
|---|---|
| Diagram |  |
| Type | extension of coordFrameType |
| Type hierarchy | • stcBaseType<br>  • coordFrameType<br>  • timeFrameType |
| Used by | Element TimeFrame |
| Model | Name{0,1} , TimeScale , ReferencePosition , TimeRefDirection{0,1} |
| Children | Name, ReferencePosition, TimeRefDirection, TimeScale |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

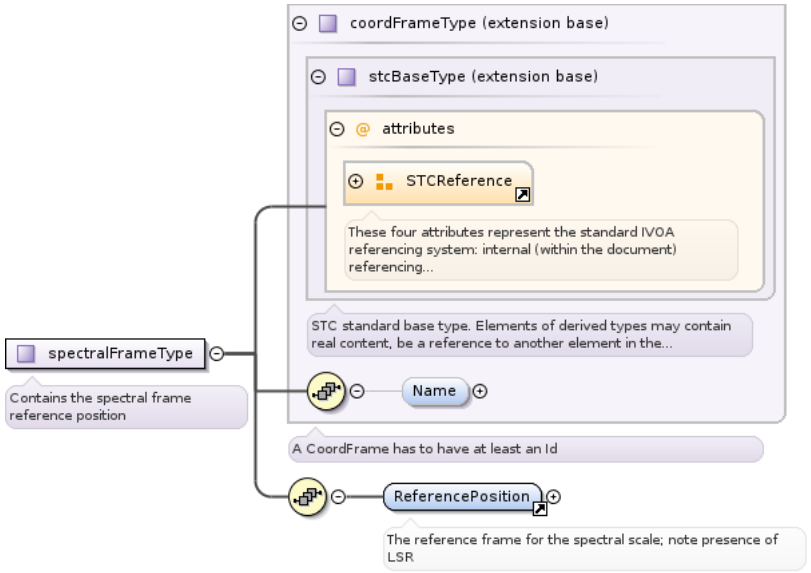
Source

```
<xs:complexType name="timeFrameType">
  <xs:annotation>
    <xs:documentation>The time reference frame consists of a timescale, a reference
 position, and optionally a reference direction (needed when transformations have been
 applied)</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="coordFrameType">
      <xs:sequence>
        <xs:element name="TimeScale" type="timeScaleType" default="TT" nillable="true">
          <xs:annotation>
            <xs:documentation>The time reference frame consists of a time scale, a time
 format, and a reference time, if needed</xs:documentation>
          </xs:annotation>
        </xs:element>
        <xs:element ref="ReferencePosition">
          <xs:annotation>
```

```
            <xs:documentation>Origin of the coordinate reference frame: either a "known
 place" such as geocenter or barycenter, or a position defined in a known coordinate
 system</xs:documentation>
          </xs:annotation>
        </xs:element>
        <xs:element name="TimeRefDirection" type="astroCoordsType" minOccurs="0">
          <xs:annotation>
            <xs:documentation>Some time transformations (e.g., change of RefPos) depend on
 an assumed directonal position of the source</xs:documentation>
          </xs:annotation>
        </xs:element>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type `spectralFrameType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Contains the spectral frame reference position |
| Diagram |  |



| | |
|---|---|
| Type | extension of coordFrameType |
| Type hierarchy | • stcBaseType<br>  • coordFrameType<br>  • spectralFrameType |
| Used by | Element SpectralFrame |
| Model | Name{0,1} , ReferencePosition |
| Children | Name, ReferencePosition |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

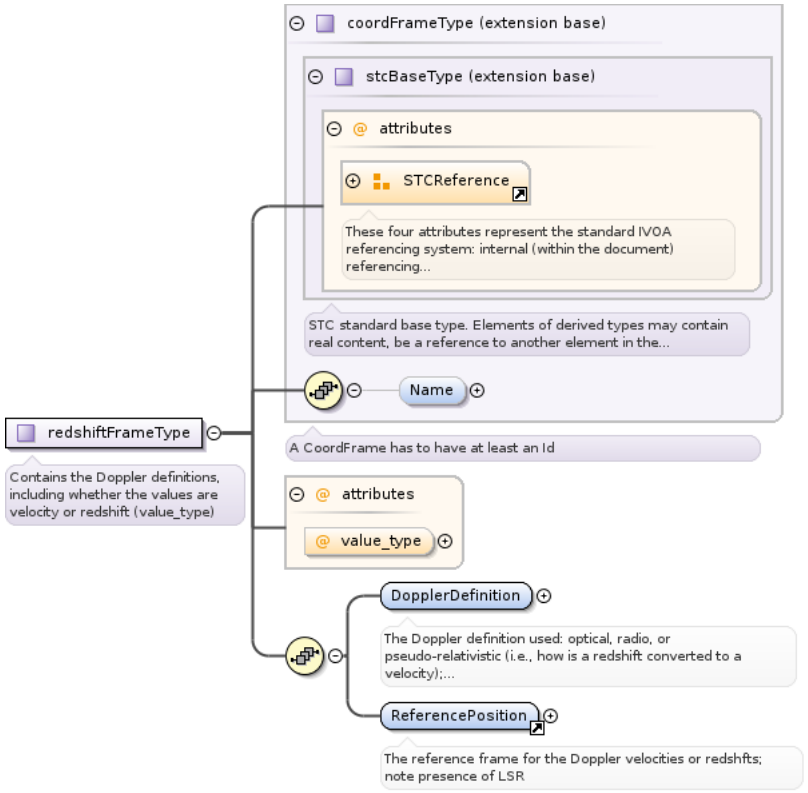
Source

```
<xs:complexType name="spectralFrameType">
  <xs:annotation>
    <xs:documentation>Contains the spectral frame reference position</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
```

```
    <xs:extension base="coordFrameType">
      <xs:sequence>
        <xs:element ref="ReferencePosition">
          <xs:annotation>
            <xs:documentation>The reference frame for the spectral scale; note presence of
 LSR</xs:documentation>
          </xs:annotation>
        </xs:element>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type `redshiftFrameType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Contains the Doppler definitions, including whether the values are velocity or redshift (value_type) |
| Diagram |  |
| Type | extension of coordFrameType |
| Type hierarchy | • stcBaseType<br>  • coordFrameType<br>  • redshiftFrameType |
| Used by | Element RedshiftFrame |
| Model | Name{0,1} , DopplerDefinition , ReferencePosition |
| Children | DopplerDefinition, Name, ReferencePosition |



Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **value_type** | restriction of xs:string | | VELOCITY | optional |

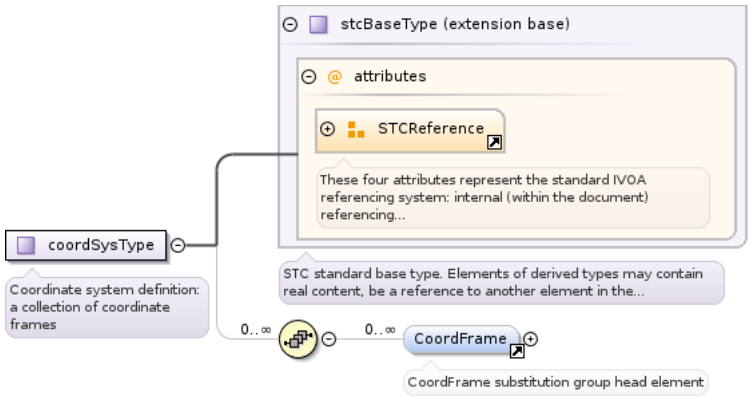
| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:complexType name="redshiftFrameType">
  <xs:annotation>
    <xs:documentation>Contains the Doppler definitions, including whether the values are
 velocity or redshift (value_type)</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="coordFrameType">
      <xs:sequence>
        <xs:element name="DopplerDefinition" type="dopplerDefinitionType" nillable="true">
          <xs:annotation>
            <xs:documentation>The Doppler definition used: optical, radio, or pseudo-
relativistic (i.e., how is a redshift converted to a velocity); the most common is
 optical, except when the reference is LSR (usually radio)</xs:documentation>
          </xs:annotation>
        </xs:element>
        <xs:element ref="ReferencePosition">
          <xs:annotation>
            <xs:documentation>The reference frame for the Doppler velocities or redshfts;
 note presence of LSR</xs:documentation>
          </xs:annotation>
        </xs:element>
      </xs:sequence>
      <xs:attribute name="value_type" use="optional" default="VELOCITY">
        <xs:simpleType>
          <xs:restriction base="xs:string">
            <xs:enumeration value="VELOCITY"/>
            <xs:enumeration value="REDSHIFT"/>
          </xs:restriction>
        </xs:simpleType>
      </xs:attribute>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Complex Type coordSysType

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Coordinate system definition: a collection of coordinate frames |
| Diagram |  |
| Type | extension of stcBaseType |
| Type hierarchy | • stcBaseType<br>  • coordSysType |
| Used by | Element: CoordSys<br>Complex Types: astroCoordSystemType, pixelCoordSystemType |
| Model | CoordFrame* |
| Children | CoordFrame |



Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |

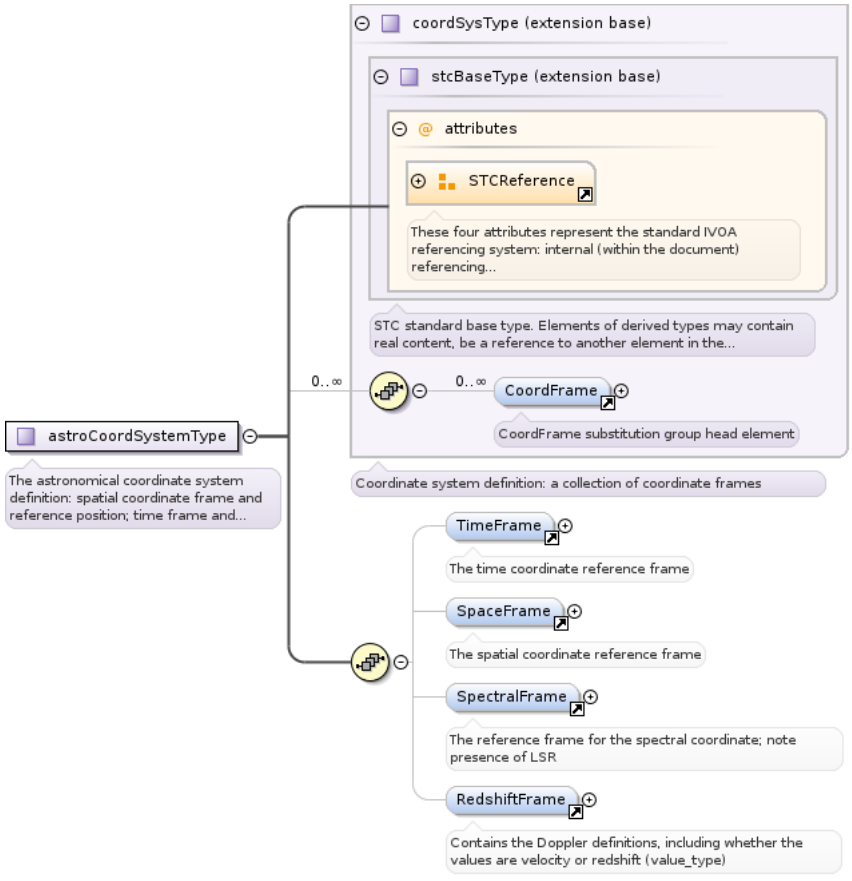
| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **ID_type** | xs:string | | | optional |
| | **id** | xs:ID | | | optional |
| | **idref** | xs:IDREF | | | optional |
| | **ucd** | xs:string | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:complexType name="coordSysType">
  <xs:annotation>
    <xs:documentation>Coordinate system definition: a collection of coordinate frames</
xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="stcBaseType">
      <xs:annotation>
        <xs:documentation>A CoordSys consists of at least one coordinate frames;
 unfortunately, schema inheritance and polymorphism doesn't allow us to specify this in
 the most genarl way</xs:documentation>
      </xs:annotation>
      <xs:sequence minOccurs="0" maxOccurs="unbounded">
        <xs:element ref="CoordFrame" minOccurs="0" maxOccurs="unbounded"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Complex Type `astroCoordSystemType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The astronomical coordinate system definition: spatial coordinate frame and reference position; time frame and reference position; the coordinate flavor; spectral frame and (optionally) Doppler frame; and the planetary ephemeris; an ID is required, since this is how coordinate elements are associated with their coordinate systems |
| Diagram |  |

| | |
|---|---|
| Type | extension of coordSysType |
| Type hierarchy | • stcBaseType<br>  • coordSysType<br>  • astroCoordSystemType |
| Used by | Element AstroCoordSystem |
| Model | CoordFrame* , TimeFrame{0,1} , SpaceFrame{0,1} , SpectralFrame{0,1} , RedshiftFrame{0,1} |
| Children | CoordFrame, RedshiftFrame, SpaceFrame, SpectralFrame, TimeFrame |

Attributes

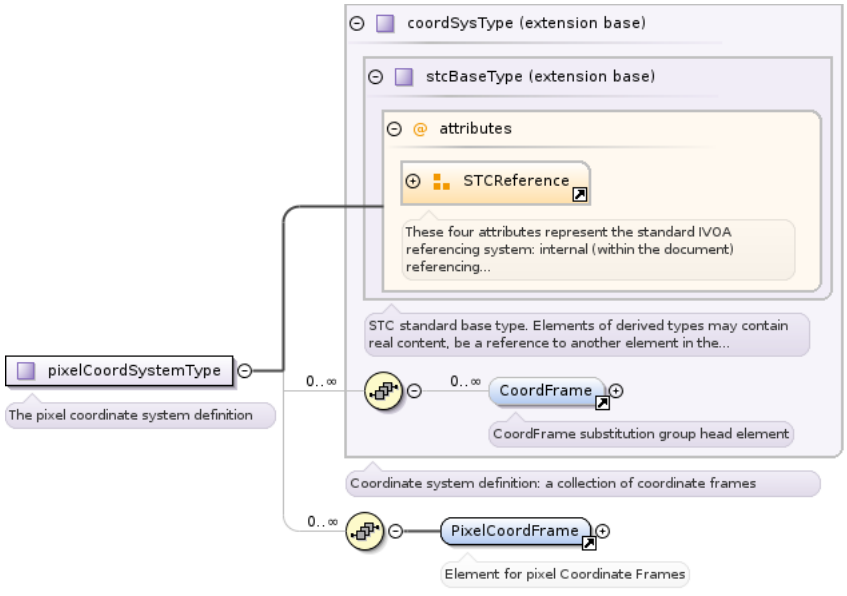
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:complexType name="astroCoordSystemType">
  <xs:annotation>
    <xs:documentation>The astronomical coordinate system definition: spatial coordinate
 frame and reference position; time frame and reference position; the coordinate flavor;
 spectral frame and (optionally) Doppler frame; and the planetary ephemeris; an ID is
 required, since this is how coordinate elements are associated with their coordinate
 systems</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="coordSysType">
      <xs:sequence>
        <xs:element ref="TimeFrame" minOccurs="0"/>
        <xs:element ref="SpaceFrame" minOccurs="0"/>
        <xs:element ref="SpectralFrame" minOccurs="0"/>
        <xs:element ref="RedshiftFrame" minOccurs="0"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type `pixelCoordSystemType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The pixel coordinate system definition |
| Diagram |  |

| | |
|---|---|
| Type | extension of coordSysType |
| Type hierarchy | • stcBaseType<br>  • coordSysType<br>  • pixelCoordSystemType |
| Used by | Element PixelCoordSystem |
| Model | CoordFrame* , PixelCoordFrame |
| Children | CoordFrame, PixelCoordFrame |

Attributes

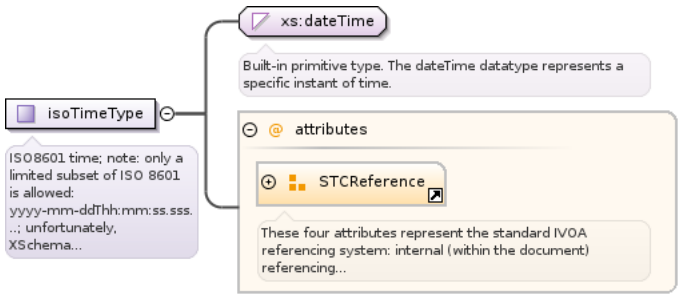
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:complexType name="pixelCoordSystemType">
  <xs:annotation>
    <xs:documentation>The pixel coordinate system definition</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="coordSysType">
      <xs:sequence minOccurs="0" maxOccurs="unbounded">
        <xs:element ref="PixelCoordFrame"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type `isoTimeType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `ISO8601 time; note: only a limited subset of ISO 8601 is allowed: yyyy-mm-ddThh:mm:ss.sss...; unfortunately, XSchema does not allow hh, mm, or ss to be optional, ".ss" is.` |
| Diagram |  |



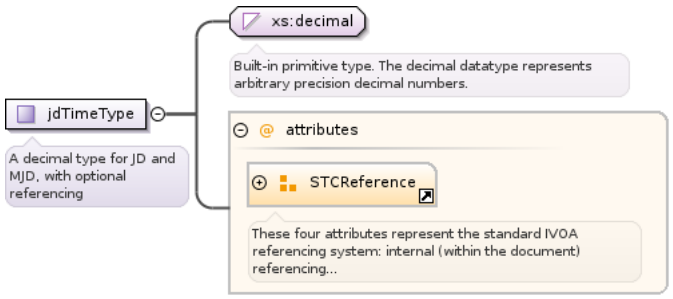
| | |
|---|---|
| Type | extension of xs:dateTime |
| Used by | Element ISOTime |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

| | |
|---|---|
| Source | <xs:complexType name="isoTimeType"><br><xs:annotation><br><xs:documentation>ISO8601 time; note: only a limited subset of ISO 8601 is allowed: yyyy-mm-ddThh:mm:ss.sss...; unfortunately, XSchema does not allow hh, mm, or ss to be optional, ".ss" is.</xs:documentation><br></xs:annotation><br><xs:simpleContent><br><xs:extension base="xs:dateTime"><br><xs:attributeGroup ref="STCReference"/><br></xs:extension><br></xs:simpleContent><br></xs:complexType> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type jdTimeType

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | A decimal type for JD and MJD, with optional referencing |
| Diagram |  |
| Type | extension of xs:decimal |
| Used by | Elements JDTime, MJDTime |

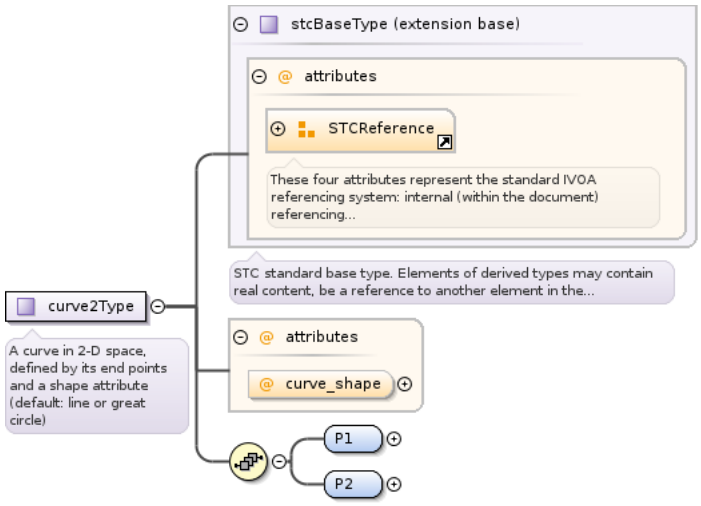
Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

| | |
|---|---|
| Source | <xs:complexType name="jdTimeType"><br><xs:annotation><br><xs:documentation>A decimal type for JD and MJD, with optional referencing</xs:documentation><br></xs:annotation><br><xs:simpleContent><br><xs:extension base="xs:decimal"><br><xs:attributeGroup ref="STCReference"/><br></xs:extension><br></xs:simpleContent><br></xs:complexType> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type curve2Type

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | A curve in 2-D space, defined by its end points and a shape attribute (default: line or great circle) |

| | |
|---|---|
| Diagram |  |
| Type | extension of stcBaseType |
| Type hierarchy | • stcBaseType<br>  • curve2Type |
| Used by | Element Curve2 |
| Model | P1 , P2 |
| Children | P1, P2 |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **curve_shape** | xs:string | | line | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

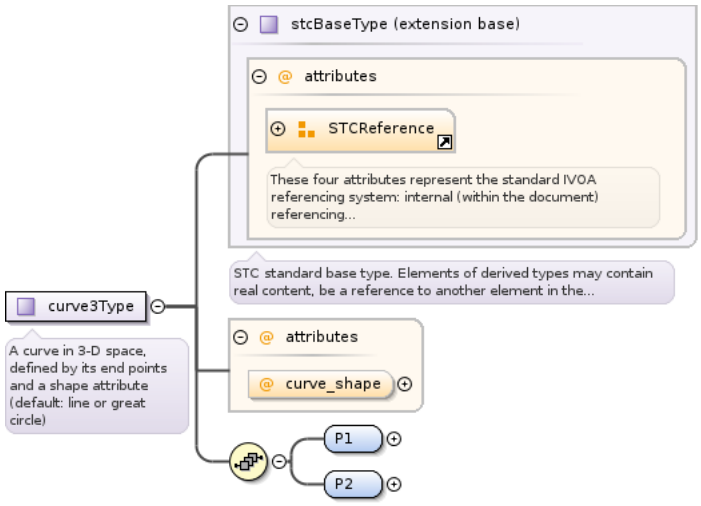
Source

```
<xs:complexType name="curve2Type">
  <xs:annotation>
    <xs:documentation>A curve in 2-D space, defined by its end points and a shape
 attribute (default: line or great circle)</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="stcBaseType">
      <xs:sequence>
        <xs:element name="P1" type="double2Type" nillable="true"/>
        <xs:element name="P2" type="double2Type" nillable="true"/>
      </xs:sequence>
      <xs:attribute name="curve_shape" type="xs:string" use="optional" default="line"/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type curve3Type

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | A curve in 3-D space, defined by its end points and a shape attribute (default: line or great circle) |

| | |
|---|---|
| Diagram |  |
| Type | extension of stcBaseType |
| Type hierarchy | • stcBaseType<br>• curve3Type |
| Used by | Element Curve3 |
| Model | P1 , P2 |
| Children | P1, P2 |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **curve_shape** | xs:string | | line | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

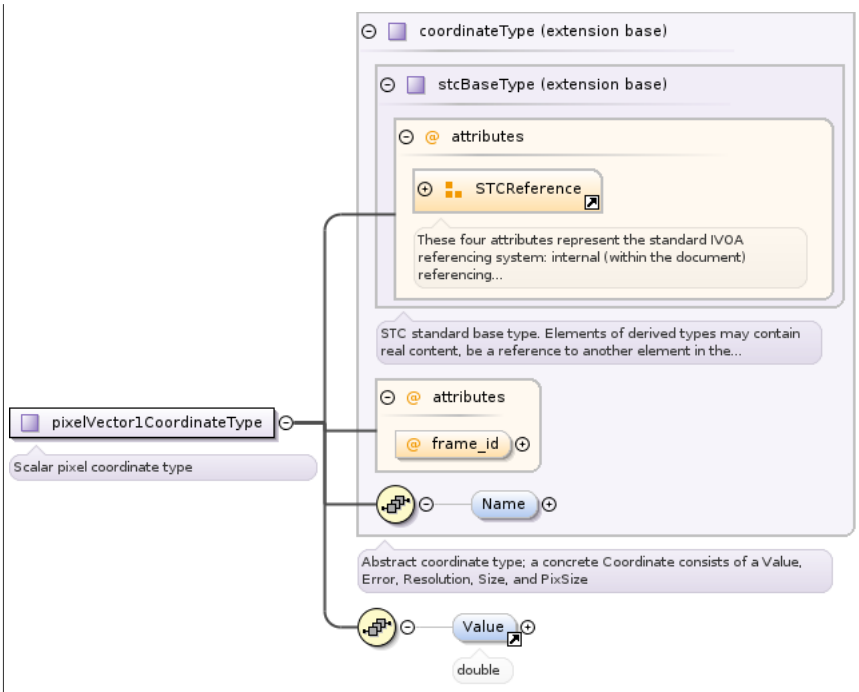
Source

```
<xs:complexType name="curve3Type">
  <xs:annotation>
    <xs:documentation>A curve in 3-D space, defined by its end points and a shape
 attribute (default: line or great circle)</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="stcBaseType">
      <xs:sequence>
        <xs:element name="P1" type="double3Type" nillable="true"/>
        <xs:element name="P2" type="double3Type" nillable="true"/>
      </xs:sequence>
      <xs:attribute name="curve_shape" type="xs:string" use="optional" default="line"/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type `pixelVector1CoordinateType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Scalar pixel coordinate type |

| | |
|---|---|
| Diagram |  |
| Type | extension of coordinateType |
| Type hierarchy | • stcBaseType<br>  • coordinateType<br>  • pixelVector1CoordinateType |
| Used by | Element Pixel1D |
| Model | Name{0,1} , Value{0,1} |
| Children | Name, Value |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **frame_id** | xs:IDREF | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

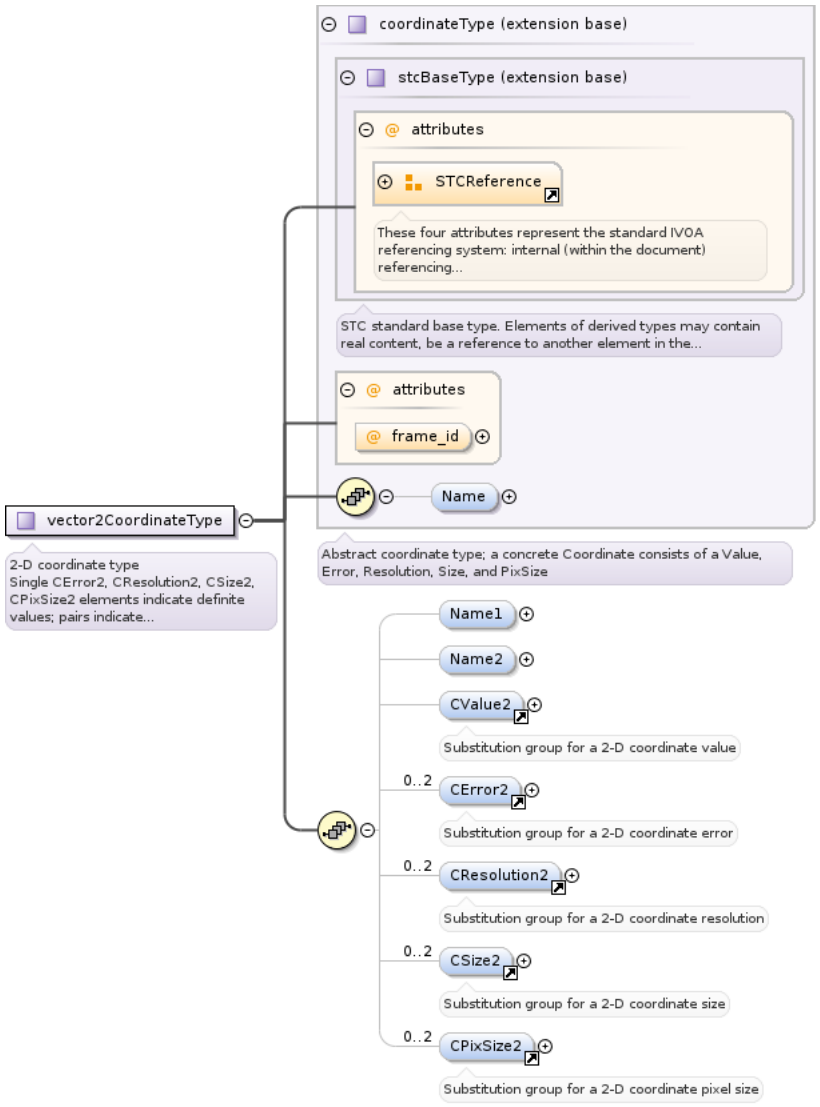
Source

```
<xs:complexType name="pixelVector1CoordinateType">
  <xs:annotation>
    <xs:documentation>Scalar pixel coordinate type</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="coordinateType">
      <xs:sequence>
        <xs:element ref="Value" minOccurs="0"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type `vector2CoordinateType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `2-D coordinate type` |

| | |
|---|---|
| | `Single CError2, CResolution2, CSize2, CPixSize2 elements indicate definite values; pairs indicate ranges` |
| Diagram |  |
| Type | extension of coordinateType |
| Type hierarchy | • stcBaseType<br>  • coordinateType<br>  • vector2CoordinateType |
| Used by | Complex Types genVector2CoordinateType, posVector2CoordinateType |
| Model | Name{0,1} , Name1{0,1} , Name2{0,1} , CValue2{0,1} , CError2{0,2} , CResolution2{0,2} , CSize2{0,2} , CPixSize2{0,2} |
| Children | CError2, CPixSize2, CResolution2, CSize2, CValue2, Name, Name1, Name2 |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **frame_id** | xs:IDREF | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |

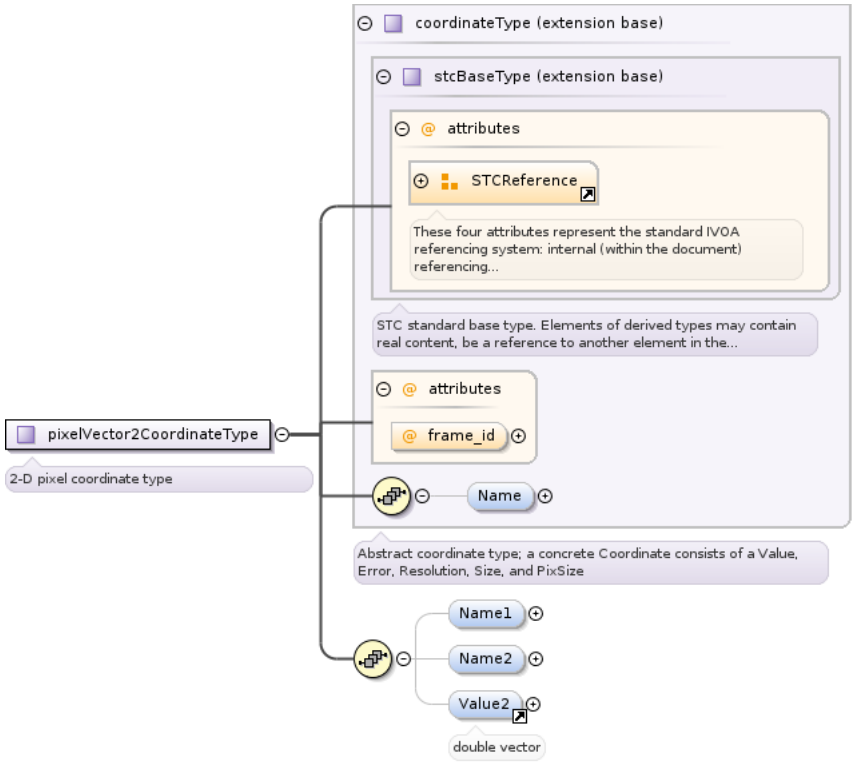
| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:complexType name="vector2CoordinateType">
  <xs:annotation>
    <xs:documentation>2-D coordinate type</xs:documentation>
    <xs:documentation>Single CError2, CResolution2, CSize2, CPixSize2 elements indicate
 definite values; pairs indicate ranges</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="coordinateType">
      <xs:sequence>
        <xs:element name="Name1" type="xs:string" minOccurs="0"/>
        <xs:element name="Name2" type="xs:string" minOccurs="0"/>
        <xs:element ref="CValue2" minOccurs="0"/>
        <xs:element ref="CError2" minOccurs="0" maxOccurs="2"/>
        <xs:element ref="CResolution2" minOccurs="0" maxOccurs="2"/>
        <xs:element ref="CSize2" minOccurs="0" maxOccurs="2"/>
        <xs:element ref="CPixSize2" minOccurs="0" maxOccurs="2"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Complex Type `pixelVector2CoordinateType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | 2-D pixel coordinate type |
| Diagram |  |
| Type | extension of coordinateType |
| Type hierarchy | • stcBaseType<br>  • coordinateType<br>  • pixelVector2CoordinateType |
| Used by | Element Pixel2D |
| Model | Name{0,1} , Name1{0,1} , Name2{0,1} , Value2{0,1} |
| Children | Name, Name1, Name2, Value2 |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **frame_id** | xs:IDREF | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

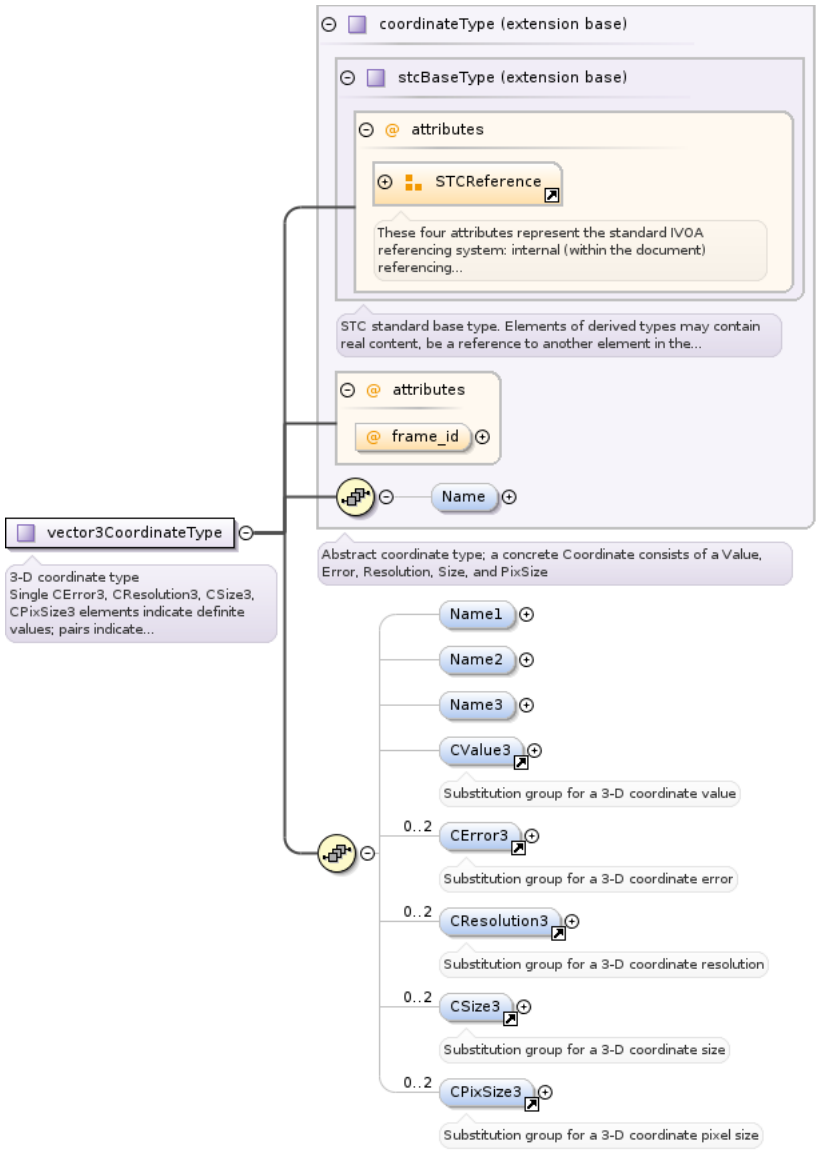
Source

```
<xs:complexType name="pixelVector2CoordinateType">
  <xs:annotation>
    <xs:documentation>2-D pixel coordinate type</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="coordinateType">
      <xs:sequence>
        <xs:element name="Name1" type="xs:string" minOccurs="0"/>
        <xs:element name="Name2" type="xs:string" minOccurs="0"/>
        <xs:element ref="Value2" minOccurs="0"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Complex Type `vector3CoordinateType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | 3-D coordinate type<br><br>Single CError3, CResolution3, CSize3, CPixSize3 elements indicate definite values; pairs indicate ranges |

| | |
|---|---|
| Diagram |  |
| Type | extension of coordinateType |
| Type hierarchy | • stcBaseType<br>• coordinateType<br>• vector3CoordinateType |
| Used by | Complex Types genVector3CoordinateType, posVector3CoordinateType |
| Model | Name{0,1} , Name1{0,1} , Name2{0,1} , Name3{0,1} , CValue3{0,1} , CError3{0,2} , CResolution3{0,2} , CSize3{0,2} , CPixSize3{0,2} |
| Children | CError3, CPixSize3, CResolution3, CSize3, CValue3, Name, Name1, Name2, Name3 |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **frame_id** | xs:IDREF | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |

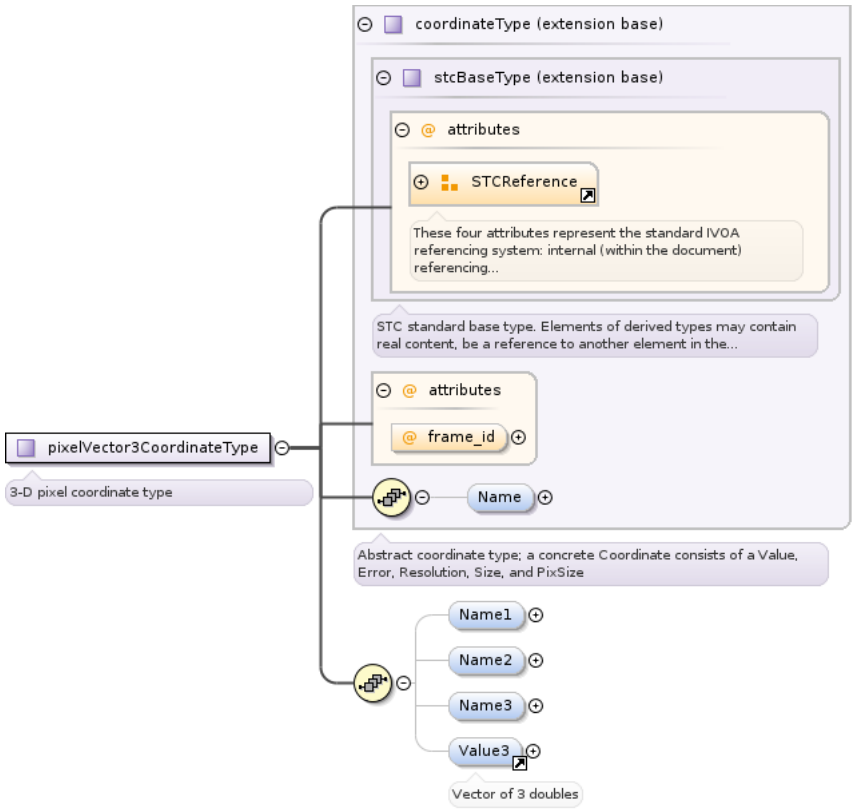
| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:complexType name="vector3CoordinateType">
  <xs:annotation>
    <xs:documentation>3-D coordinate type</xs:documentation>
    <xs:documentation>Single CError3, CResolution3, CSize3, CPixSize3 elements indicate
 definite values; pairs indicate ranges</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="coordinateType">
      <xs:sequence>
        <xs:element name="Name1" type="xs:string" minOccurs="0"/>
        <xs:element name="Name2" type="xs:string" minOccurs="0"/>
        <xs:element name="Name3" type="xs:string" minOccurs="0"/>
        <xs:element ref="CValue3" minOccurs="0"/>
        <xs:element ref="CError3" minOccurs="0" maxOccurs="2"/>
        <xs:element ref="CResolution3" minOccurs="0" maxOccurs="2"/>
        <xs:element ref="CSize3" minOccurs="0" maxOccurs="2"/>
        <xs:element ref="CPixSize3" minOccurs="0" maxOccurs="2"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Complex Type `pixelVector3CoordinateType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | 3-D pixel coordinate type |
| Diagram |  |
| Type | extension of coordinateType |
| Type hierarchy | • stcBaseType<br>  • coordinateType<br>  • pixelVector3CoordinateType |
| Used by | Element Pixel3D |
| Model | Name{0,1} , Name1{0,1} , Name2{0,1} , Name3{0,1} , Value3{0,1} |

| | |
|---|---|
| Children | Name, Name1, Name2, Name3, Value3 |

Attributes

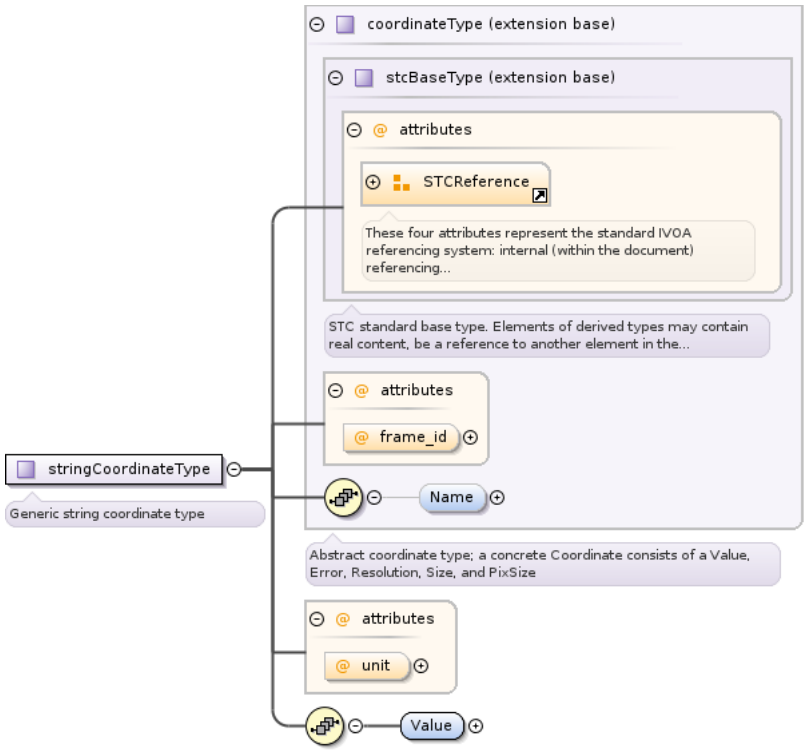
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **frame_id** | xs:IDREF | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:complexType name="pixelVector3CoordinateType">
  <xs:annotation>
    <xs:documentation>3-D pixel coordinate type</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="coordinateType">
      <xs:sequence>
        <xs:element name="Name1" type="xs:string" minOccurs="0"/>
        <xs:element name="Name2" type="xs:string" minOccurs="0"/>
        <xs:element name="Name3" type="xs:string" minOccurs="0"/>
        <xs:element ref="Value3" minOccurs="0"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type `stringCoordinateType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Generic string coordinate type |
| Diagram |  |
| Type | extension of coordinateType |
| Type hierarchy | • stcBaseType<br>  • coordinateType |

| | |
|---|---|
| | • stringCoordinateType |
| Used by | Element StringCoordinate |
| Model | Name{0,1} , Value |
| Children | Name, Value |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **frame_id** | xs:IDREF | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | unitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

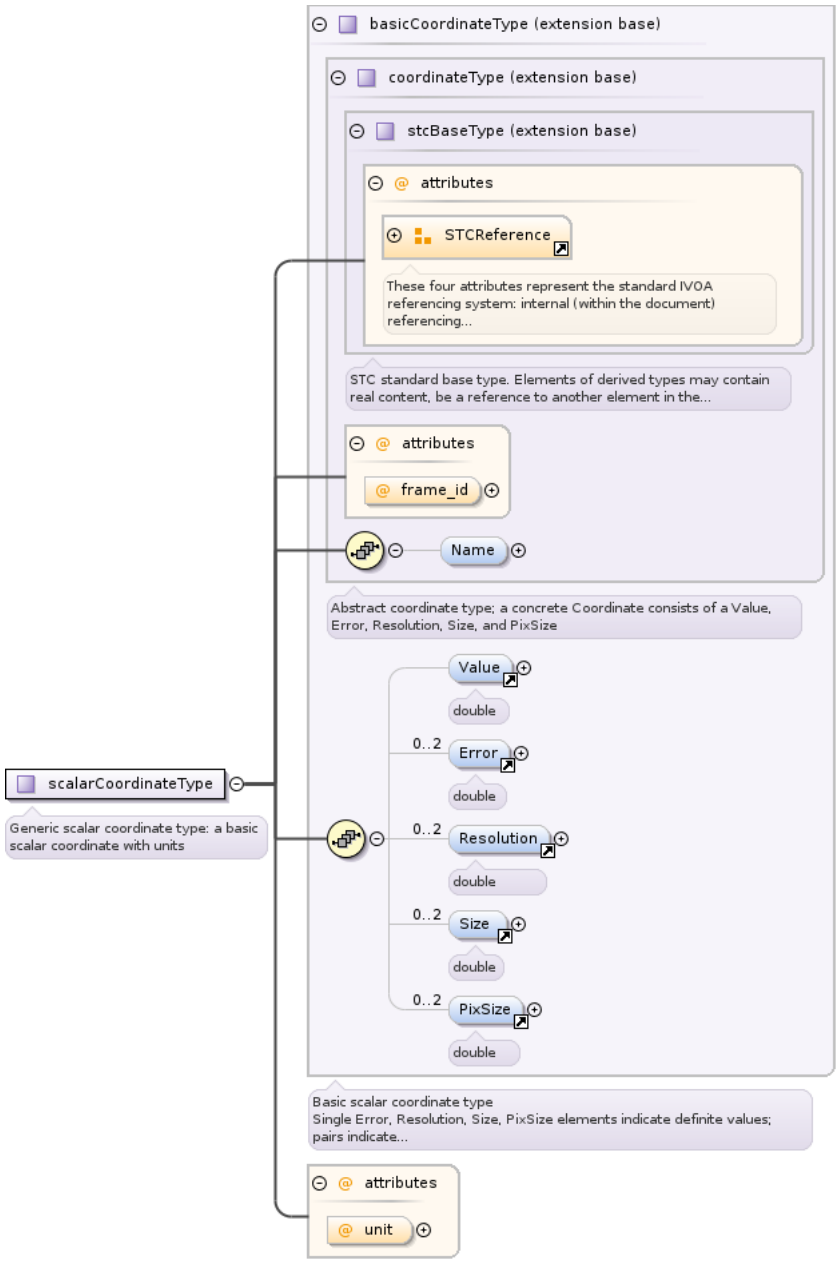
Source

```
<xs:complexType name="stringCoordinateType">
  <xs:annotation>
    <xs:documentation>Generic string coordinate type</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="coordinateType">
      <xs:sequence>
        <xs:element name="Value" type="xs:string"/>
      </xs:sequence>
      <xs:attribute name="unit" type="unitType" use="optional"/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type `scalarCoordinateType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Generic scalar coordinate type: a basic scalar coordinate with units |

| | |
|---|---|
| Diagram |  |
| Type | extension of basicCoordinateType |
| Type hierarchy | • stcBaseType<br>• coordinateType<br>• basicCoordinateType<br>• scalarCoordinateType |
| Used by | Element ScalarCoordinate |
| Model | Name{0,1} , Value{0,1} , Error{0,2} , Resolution{0,2} , Size{0,2} , PixSize{0,2} |
| Children | Error, Name, PixSize, Resolution, Size, Value |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **frame_id** | xs:IDREF | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |

| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **ucd** | xs:string | | | optional |
| | **unit** | unitType | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

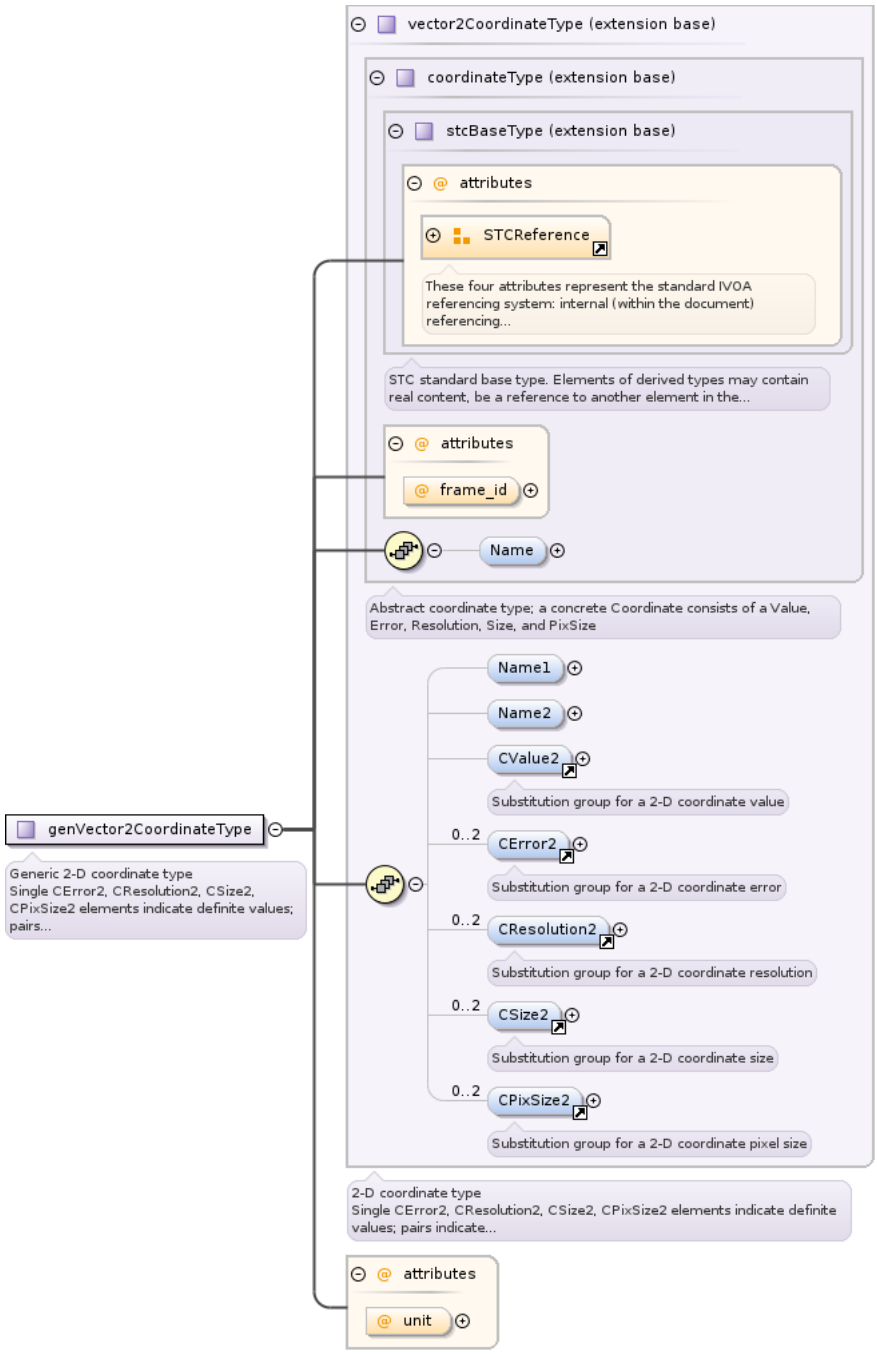
Source

```
<xs:complexType name="scalarCoordinateType">
  <xs:annotation>
    <xs:documentation>Generic scalar coordinate type: a basic scalar coordinate with
 units</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="basicCoordinateType">
      <xs:attribute name="unit" type="unitType" use="optional"/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Complex Type genVector2CoordinateType

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Generic 2-D coordinate type<br><br>Single CError2, CResolution2, CSize2, CPixSize2 elements indicate definite values; pairs indicate ranges |

| | |
|---|---|
| Diagram |  |
| Type | extension of vector2CoordinateType |
| Type hierarchy | • stcBaseType<br>• coordinateType<br>• vector2CoordinateType<br>• genVector2CoordinateType |
| Used by | Element Vector2DCoordinate |
| Model | Name{0,1} , Name1{0,1} , Name2{0,1} , CValue2{0,1} , CError2{0,2} , CResolution2{0,2} , CSize2{0,2} , CPixSize2{0,2} |
| Children | CError2, CPixSize2, CResolution2, CSize2, CValue2, Name, Name1, Name2 |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |

| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **frame_id** | xs:IDREF | | | optional |
| | **id** | xs:ID | | | optional |
| | **idref** | xs:IDREF | | | optional |
| | **ucd** | xs:string | | | optional |
| | **unit** | unitType | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

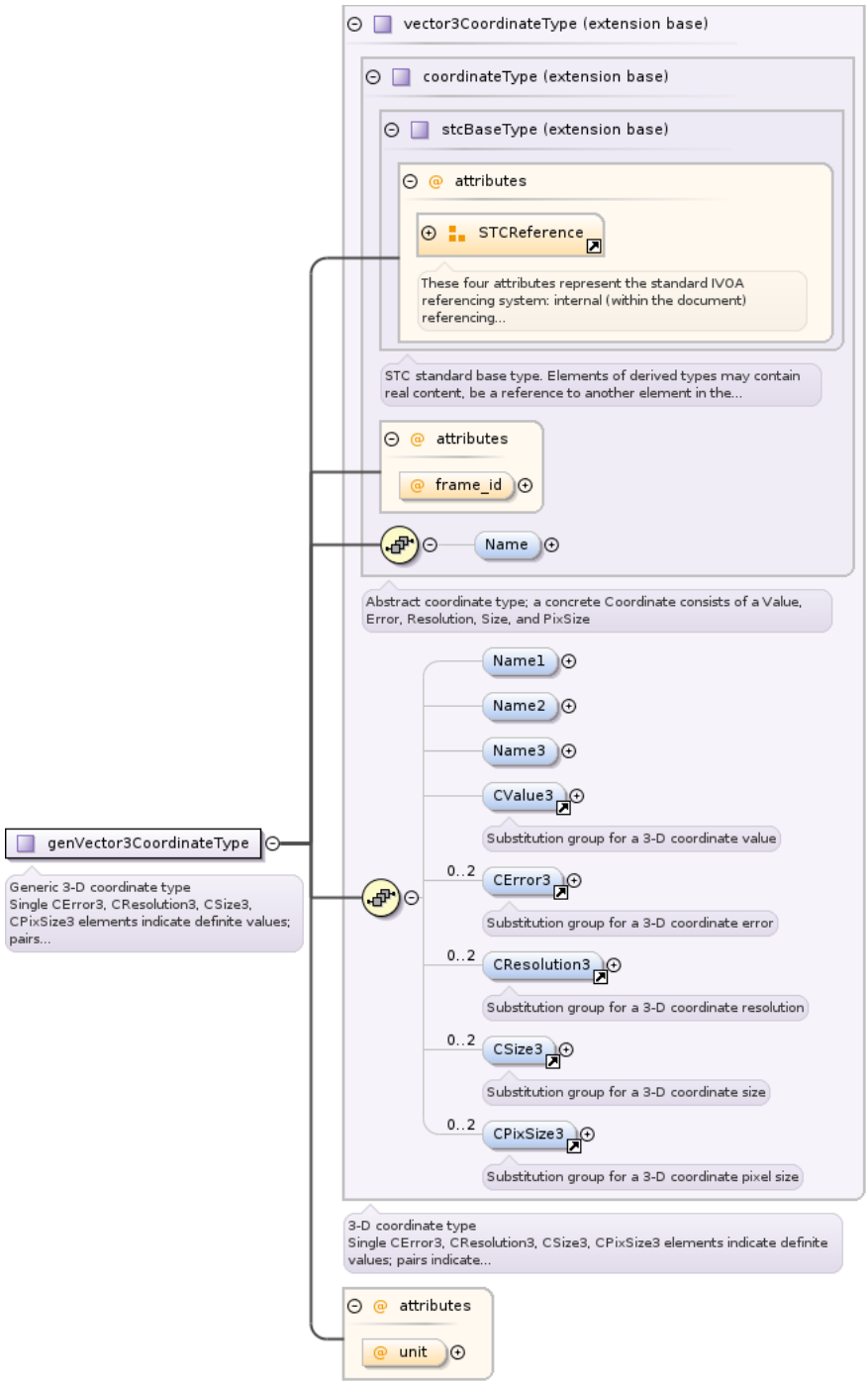
Source

```
<xs:complexType name="genVector2CoordinateType">
  <xs:annotation>
    <xs:documentation>Generic 2-D coordinate type</xs:documentation>
    <xs:documentation>Single CError2, CResolution2, CSize2, CPixSize2 elements indicate
 definite values; pairs indicate ranges</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="vector2CoordinateType">
      <xs:attribute name="unit" type="unitType" use="optional"/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type genVector3CoordinateType

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Generic 3-D coordinate type<br><br>Single CError3, CResolution3, CSize3, CPixSize3 elements indicate definite values; pairs indicate ranges |

| | |
|---|---|
| Diagram |  |
| Type | extension of vector3CoordinateType |
| Type hierarchy | • stcBaseType<br>• coordinateType<br>• vector3CoordinateType<br>• genVector3CoordinateType |
| Used by | Element Vector3DCoordinate |
| Model | Name{0,1} , Name1{0,1} , Name2{0,1} , Name3{0,1} , CValue3{0,1} , CError3{0,2} , CResolution3{0,2} , CSize3{0,2} , CPixSize3{0,2} |
| Children | CError3, CPixSize3, CResolution3, CSize3, CValue3, Name, Name1, Name2, Name3 |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |

| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **ID_type** | xs:string | | | optional |
| | **frame_id** | xs:IDREF | | | optional |
| | **id** | xs:ID | | | optional |
| | **idref** | xs:IDREF | | | optional |
| | **ucd** | xs:string | | | optional |
| | **unit** | unitType | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

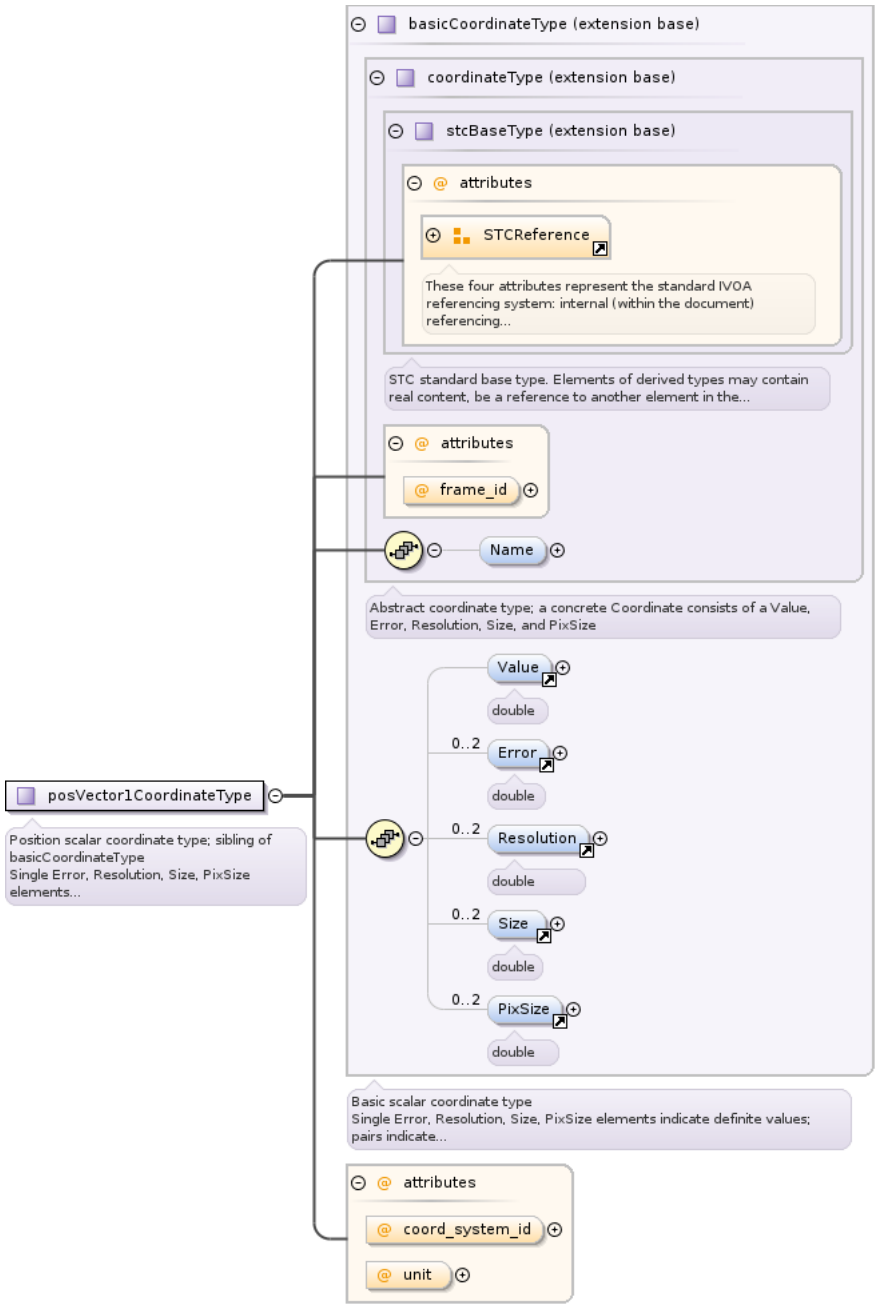
Source

```
<xs:complexType name="genVector3CoordinateType">
  <xs:annotation>
    <xs:documentation>Generic 3-D coordinate type</xs:documentation>
    <xs:documentation>Single CError3, CResolution3, CSize3, CPixSize3 elements indicate
 definite values; pairs indicate ranges</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="vector3CoordinateType">
      <xs:attribute name="unit" type="unitType" use="optional"/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
|---|---|

## Complex Type posVector1CoordinateType

| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
|---|---|
| Annotations | Position scalar coordinate type; sibling of basicCoordinateType<br><br>Single Error, Resolution, Size, PixSize elements indicate definite values; pairs indicate ranges |

| | |
|---|---|
| Diagram |  |
| Type | extension of basicCoordinateType |
| Type hierarchy | • stcBaseType<br>• coordinateType<br>• basicCoordinateType<br>• posVector1CoordinateType |
| Used by | Complex Type velVector1CoordinateType<br>Element Position1D |
| Model | Name{0,1} , Value{0,1} , Error{0,2} , Resolution{0,2} , Size{0,2} , PixSize{0,2} |
| Children | Error, Name, PixSize, Resolution, Size, Value |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |

| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **frame_id** | xs:IDREF | | | optional |
| | **id** | xs:ID | | | optional |
| | **idref** | xs:IDREF | | | optional |
| | **ucd** | xs:string | | | optional |
| | **unit** | posUnitType | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

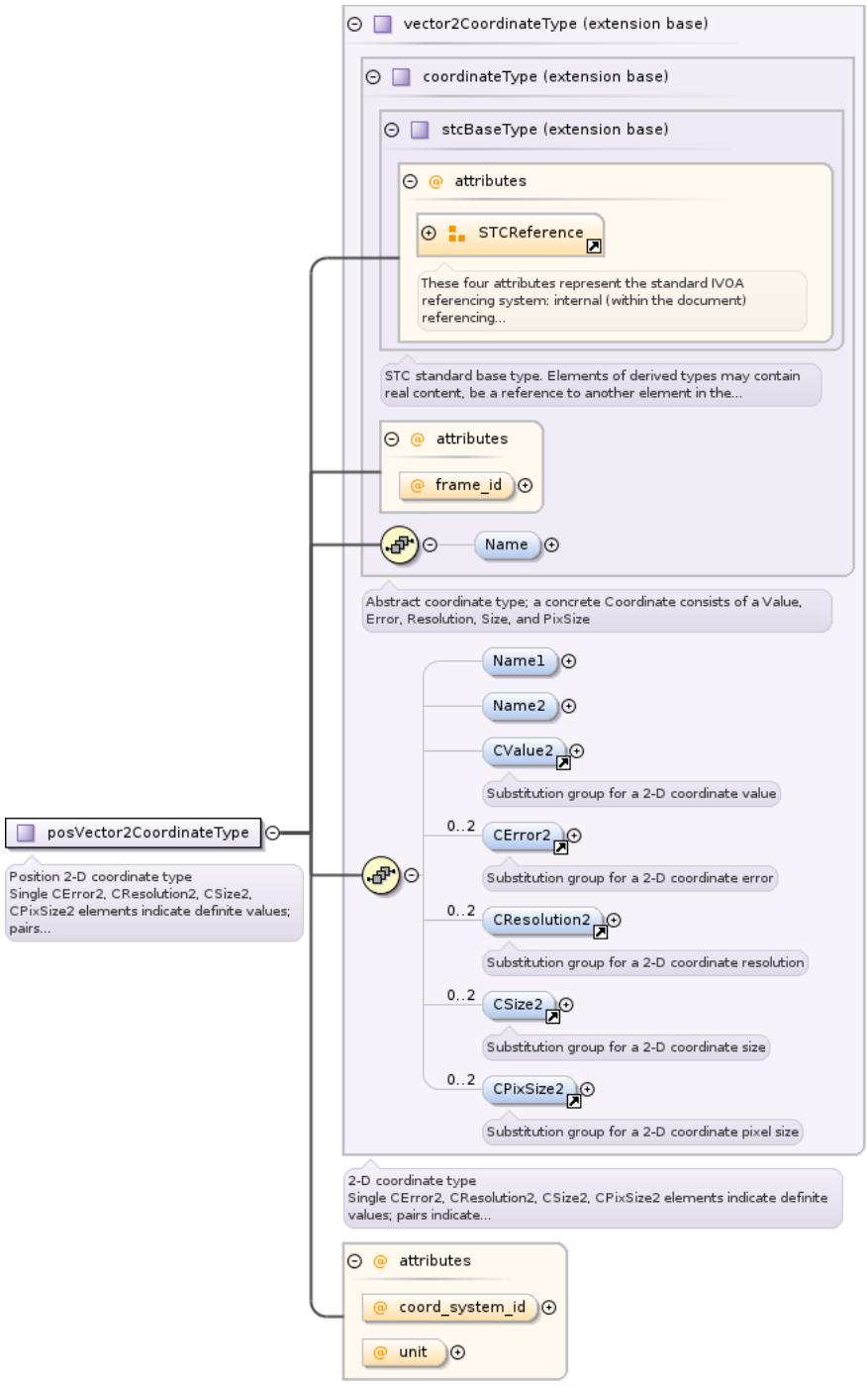
Source

```
<xs:complexType name="posVector1CoordinateType">
  <xs:annotation>
    <xs:documentation>Position scalar coordinate type; sibling of basicCoordinateType</
xs:documentation>
    <xs:documentation>Single Error, Resolution, Size, PixSize elements indicate definite
 values; pairs indicate ranges</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="basicCoordinateType">
      <xs:attribute name="coord_system_id" type="xs:IDREF" use="optional"/>
      <xs:attribute name="unit" type="posUnitType" use="optional"/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Complex Type posVector2CoordinateType

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Position 2-D coordinate type<br><br>Single CError2, CResolution2, CSize2, CPixSize2 elements indicate definite values; pairs indicate ranges |

| | |
|---|---|
| Diagram |  |
| Type | extension of vector2CoordinateType |
| Type hierarchy | • stcBaseType<br>• coordinateType<br>• vector2CoordinateType<br>• posVector2CoordinateType |
| Used by | Complex Type velVector2CoordinateType<br>Element Position2D |
| Model | Name{0,1} , Name1{0,1} , Name2{0,1} , CValue2{0,1} , CError2{0,2} , CResolution2{0,2} , CSize2{0,2} , CPixSize2{0,2} |
| Children | CError2, CPixSize2, CResolution2, CSize2, CValue2, Name, Name1, Name2 |

| | | | | | |
|---|---|---|---|---|---|
| Attributes | **QName** | **Type** | **Fixed** | **Default** | **Use** |
| | **IDREF_type** | xs:string | | | optional |
| | **ID_type** | xs:string | | | optional |
| | **coord_system_id** | xs:IDREF | | | optional |
| | **frame_id** | xs:IDREF | | | optional |
| | **id** | xs:ID | | | optional |
| | **idref** | xs:IDREF | | | optional |
| | **ucd** | xs:string | | | optional |
| | **unit** | posUnitType | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

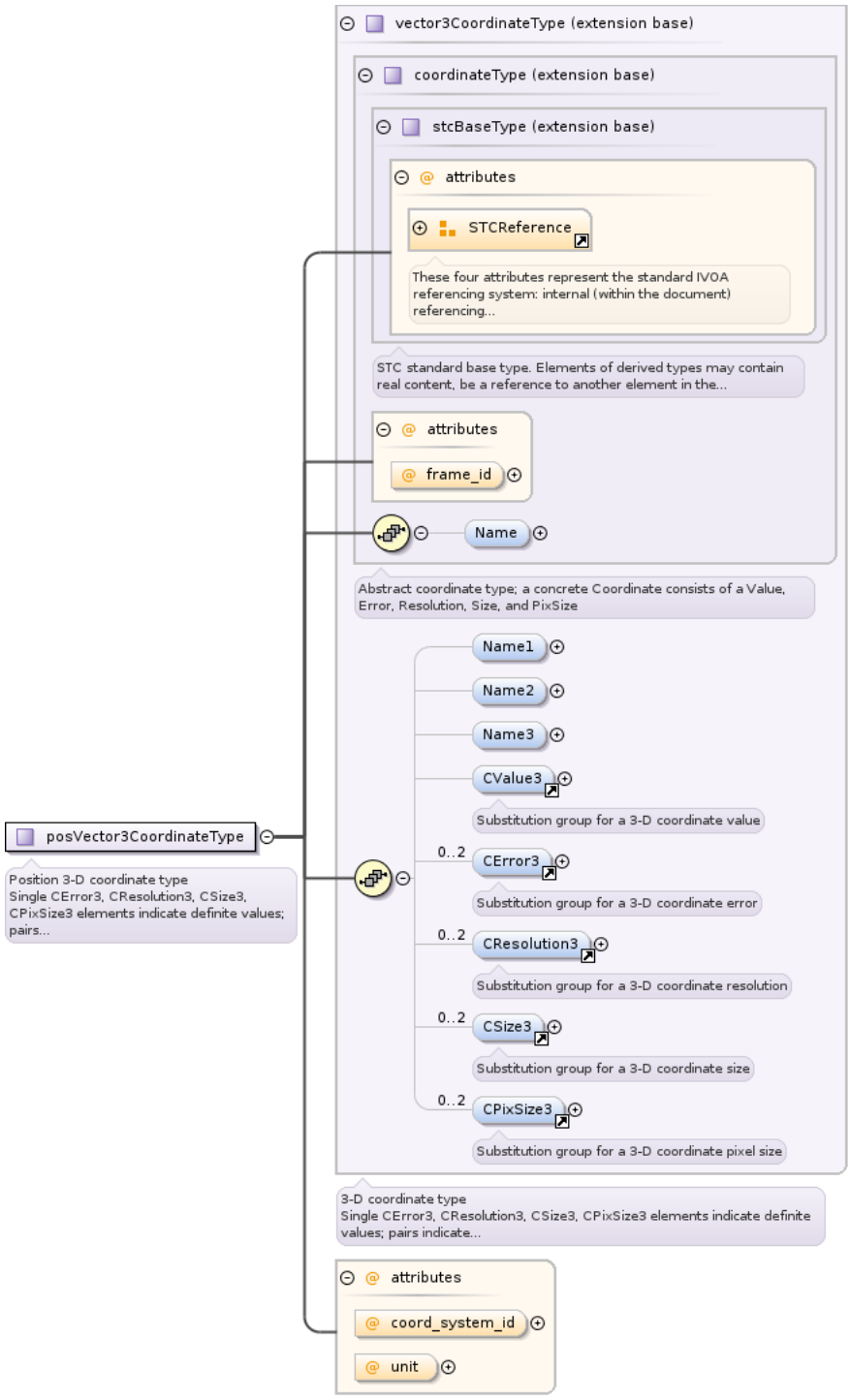
Source

```
<xs:complexType name="posVector2CoordinateType">
  <xs:annotation>
    <xs:documentation>Position 2-D coordinate type</xs:documentation>
    <xs:documentation>Single CError2, CResolution2, CSize2, CPixSize2 elements indicate
 definite values; pairs indicate ranges</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="vector2CoordinateType">
      <xs:attribute name="coord_system_id" type="xs:IDREF" use="optional"/>
      <xs:attribute name="unit" type="posUnitType" use="optional"/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type posVector3CoordinateType

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Position 3-D coordinate type<br><br>Single CError3, CResolution3, CSize3, CPixSize3 elements indicate definite values; pairs indicate ranges |

| | |
|---|---|
| Diagram |  |
| Type | extension of vector3CoordinateType |
| Type hierarchy | • stcBaseType<br>• coordinateType<br>• vector3CoordinateType<br>• posVector3CoordinateType |
| Used by | Complex Type: velVector3CoordinateType<br>Element: Position3D |
| Model | Name{0,1} , Name1{0,1} , Name2{0,1} , Name3{0,1} , CValue3{0,1} , CError3{0,2} , CResolution3{0,2} , CSize3{0,2} , CPixSize3{0,2} |
| Children | CError3, CPixSize3, CResolution3, CSize3, CValue3, Name, Name1, Name2, Name3 |

| | | | | | |
|---|---|---|---|---|---|
| Attributes | **QName** | **Type** | **Fixed** | **Default** | **Use** |
| | **IDREF_type** | xs:string | | | optional |
| | **ID_type** | xs:string | | | optional |
| | **coord_system_id** | xs:IDREF | | | optional |
| | **frame_id** | xs:IDREF | | | optional |
| | **id** | xs:ID | | | optional |
| | **idref** | xs:IDREF | | | optional |
| | **ucd** | xs:string | | | optional |
| | **unit** | posUnitType | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

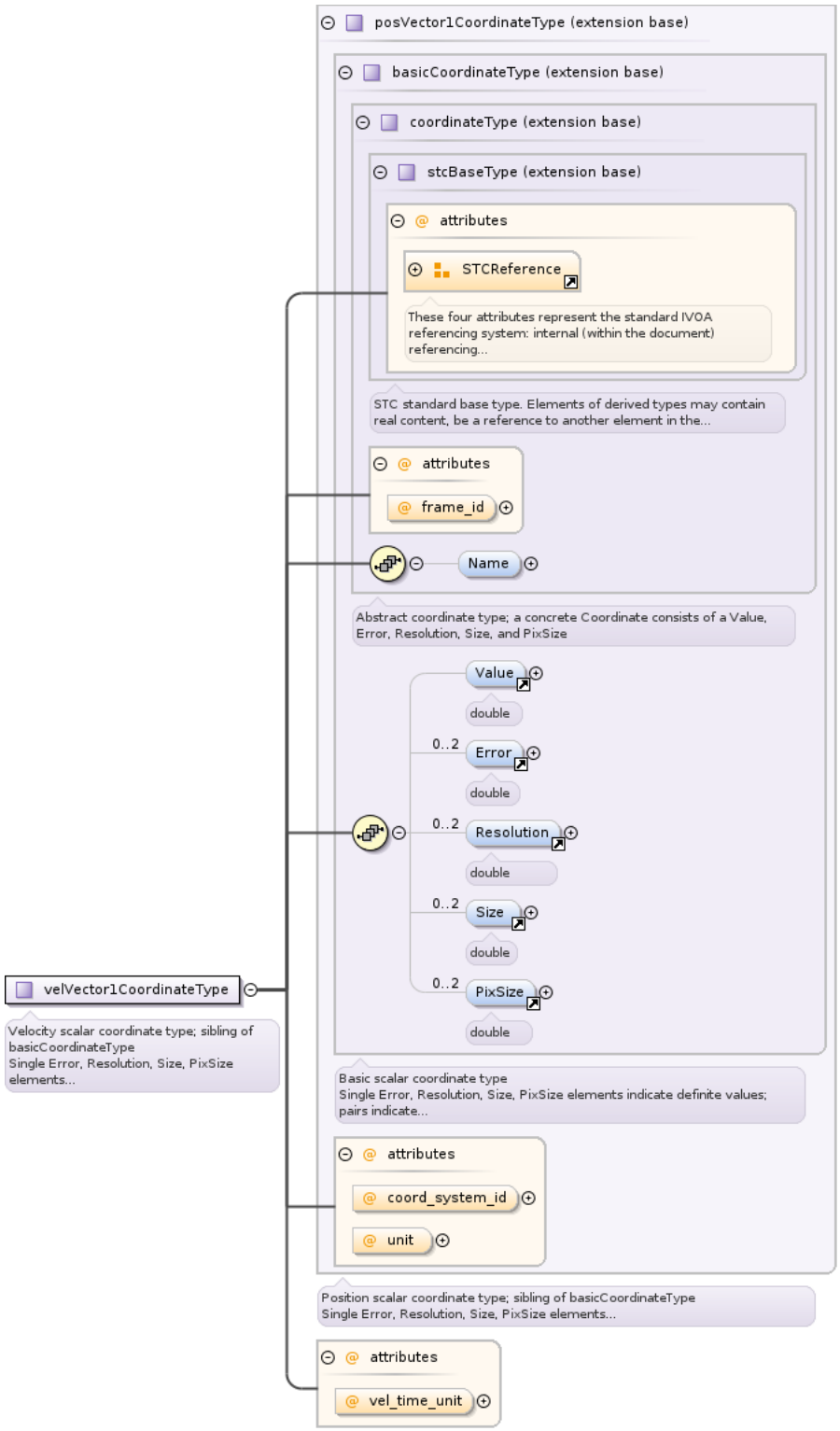
Source

```
<xs:complexType name="posVector3CoordinateType">
  <xs:annotation>
    <xs:documentation>Position 3-D coordinate type</xs:documentation>
    <xs:documentation>Single CError3, CResolution3, CSize3, CPixSize3 elements indicate
 definite values; pairs indicate ranges</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="vector3CoordinateType">
      <xs:attribute name="coord_system_id" type="xs:IDREF" use="optional"/>
      <xs:attribute name="unit" type="posUnitType" use="optional"/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Complex Type `velVector1CoordinateType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Velocity scalar coordinate type; sibling of basicCoordinateType<br><br>Single Error, Resolution, Size, PixSize elements indicate definite values; pairs indicate ranges |

| | |
|---|---|
| Diagram |  |
| Type | extension of posVector1CoordinateType |
| Type hierarchy | • stcBaseType<br>• coordinateType<br>• basicCoordinateType<br>• posVector1CoordinateType<br>• velVector1CoordinateType |
| Used by | Element Velocity1D |

| | |
|---|---|
| Model | Name{0,1} , Value{0,1} , Error{0,2} , Resolution{0,2} , Size{0,2} , PixSize{0,2} |
| Children | Error, Name, PixSize, Resolution, Size, Value |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **frame_id** | xs:IDREF | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

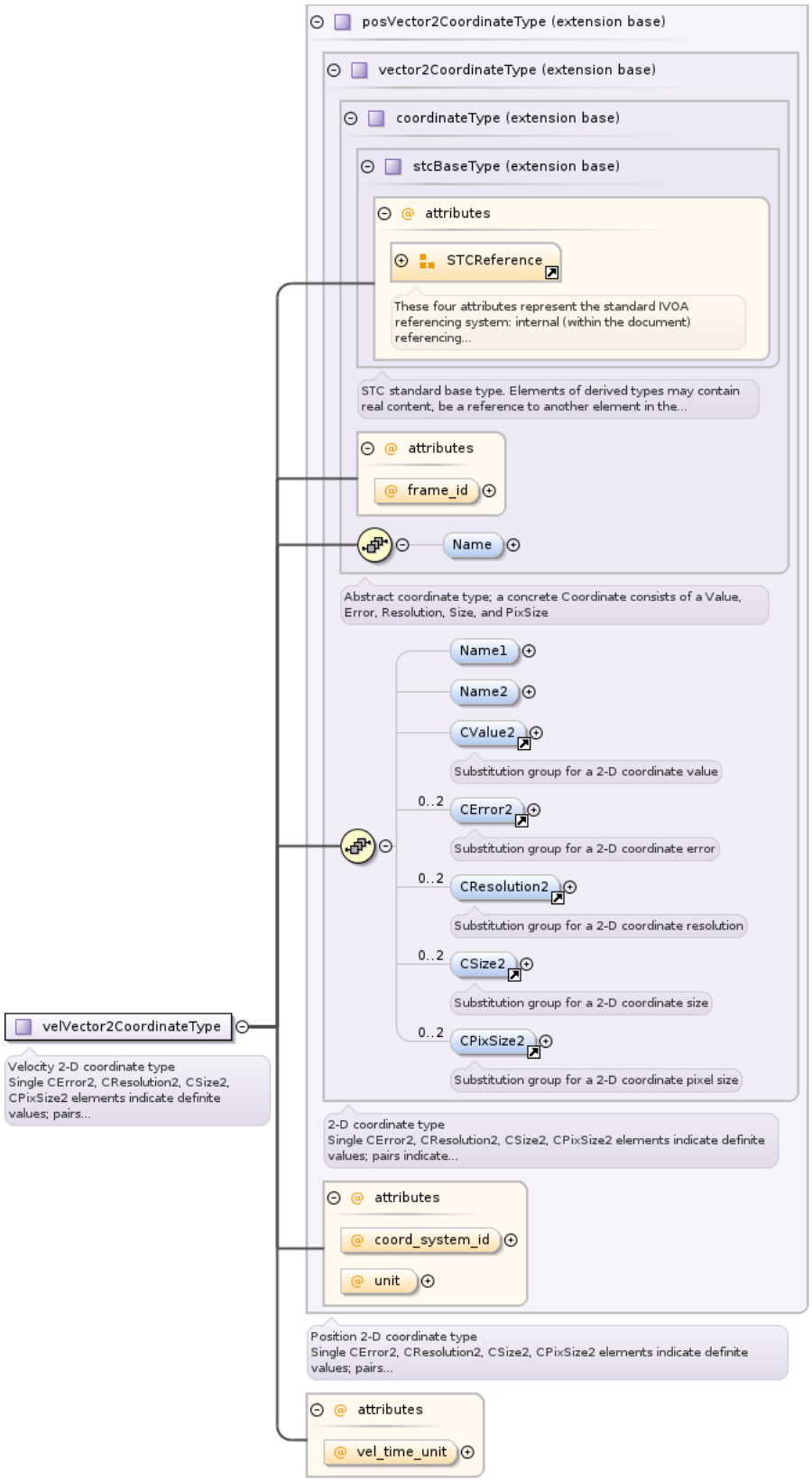
Source

```
<xs:complexType name="velVector1CoordinateType">
  <xs:annotation>
    <xs:documentation>Velocity scalar coordinate type; sibling of basicCoordinateType</
xs:documentation>
    <xs:documentation>Single Error, Resolution, Size, PixSize elements indicate definite
 values; pairs indicate ranges</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="posVector1CoordinateType">
      <xs:attribute name="vel_time_unit" type="velTimeUnitType" use="optional"/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type `velVector2CoordinateType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Velocity 2-D coordinate type<br><br>Single CError2, CResolution2, CSize2, CPixSize2 elements indicate definite values; pairs indicate ranges |

| | |
|---|---|
| Diagram |  |
| Type | extension of posVector2CoordinateType |
| Type hierarchy | • stcBaseType<br>  • coordinateType<br>  • vector2CoordinateType |

| | |
|---|---|
| | • posVector2CoordinateType<br>• velVector2CoordinateType |
| Used by | Element Velocity2D |
| Model | Name{0,1} , Name1{0,1} , Name2{0,1} , CValue2{0,1} , CError2{0,2} , CResolution2{0,2} , CSize2{0,2} , CPixSize2{0,2} |
| Children | CError2, CPixSize2, CResolution2, CSize2, CValue2, Name, Name1, Name2 |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **frame_id** | xs:IDREF | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

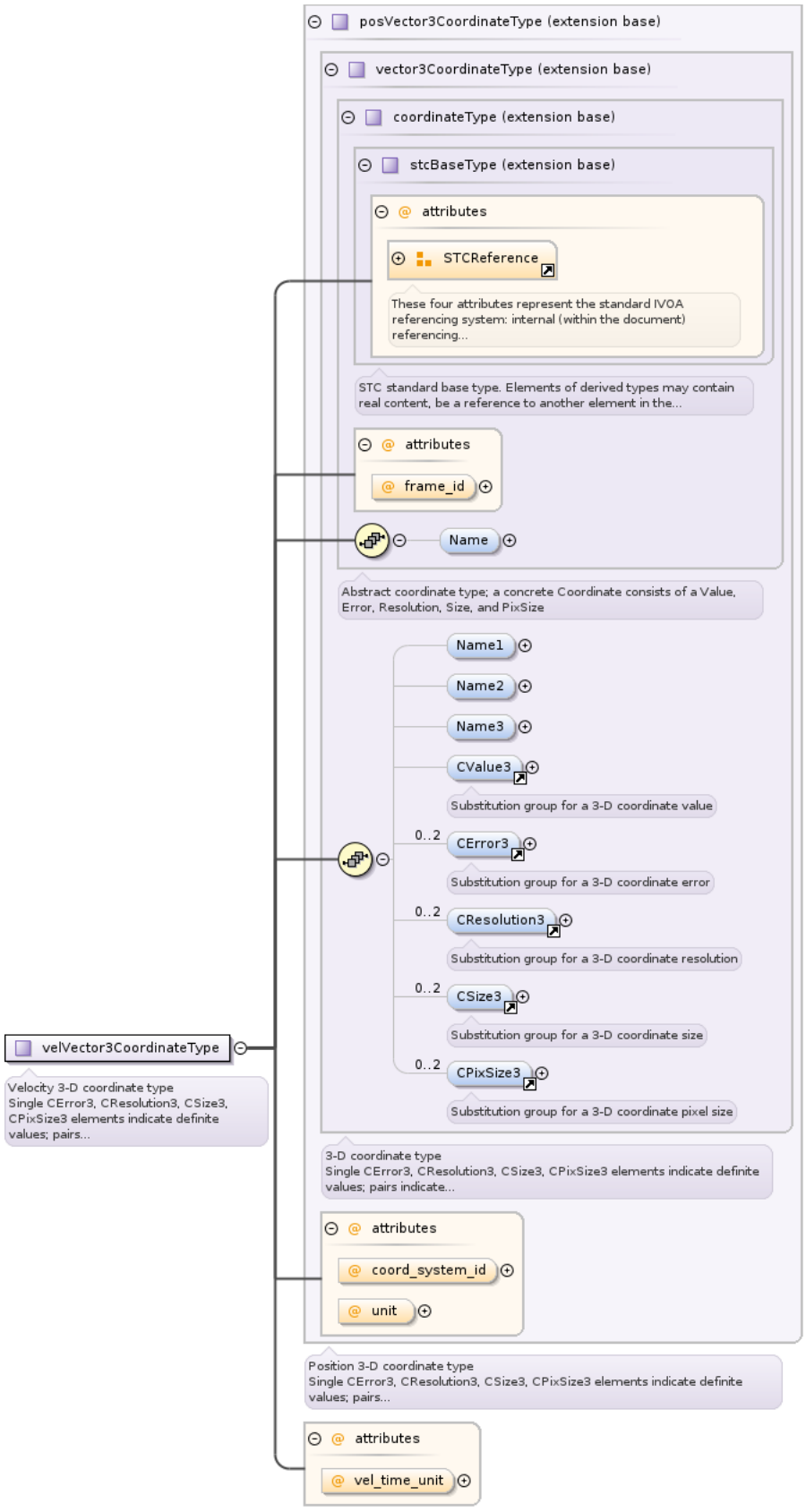
Source

```
<xs:complexType name="velVector2CoordinateType">
  <xs:annotation>
    <xs:documentation>Velocity 2-D coordinate type</xs:documentation>
    <xs:documentation>Single CError2, CResolution2, CSize2, CPixSize2 elements indicate
 definite values; pairs indicate ranges</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="posVector2CoordinateType">
      <xs:attribute name="vel_time_unit" type="velTimeUnitType" use="optional"/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type `velVector3CoordinateType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Velocity 3-D coordinate type<br><br>Single CError3, CResolution3, CSize3, CPixSize3 elements indicate definite values; pairs indicate ranges |

| | |
|---|---|
| Diagram |  |
| Type | extension of posVector3CoordinateType |
| Type hierarchy | • stcBaseType<br>  • coordinateType |

| | |
|---|---|
| | • vector3CoordinateType<br>• posVector3CoordinateType<br>• velVector3CoordinateType |
| Used by | Element Velocity3D |
| Model | Name{0,1} , Name1{0,1} , Name2{0,1} , Name3{0,1} , CValue3{0,1} , CError3{0,2} , CResolution3{0,2} , CSize3{0,2} , CPixSize3{0,2} |
| Children | CError3, CPixSize3, CResolution3, CSize3, CValue3, Name, Name1, Name2, Name3 |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **frame_id** | xs:IDREF | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

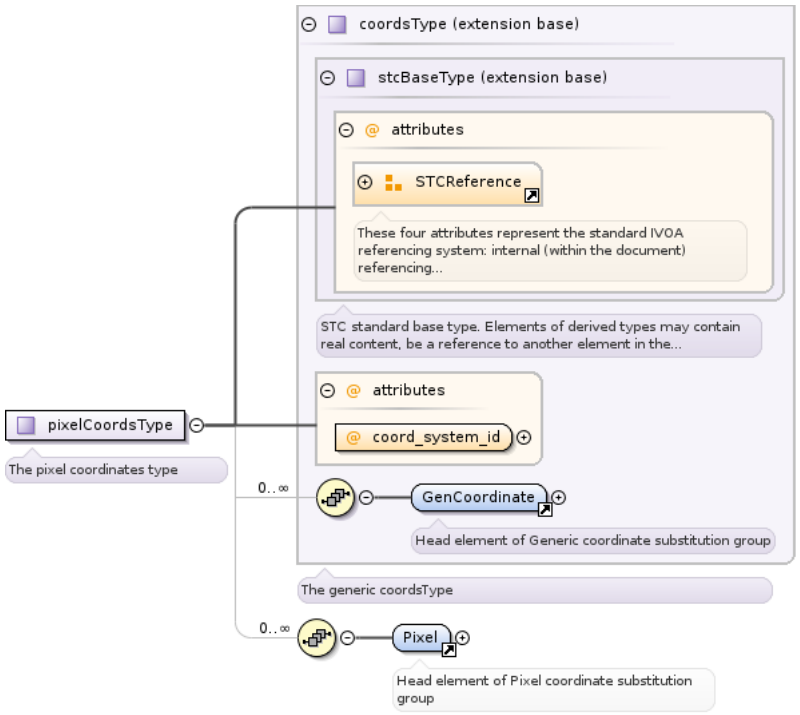
Source

```
<xs:complexType name="velVector3CoordinateType">
  <xs:annotation>
    <xs:documentation>Velocity 3-D coordinate type</xs:documentation>
    <xs:documentation>Single CError3, CResolution3, CSize3, CPixSize3 elements indicate
 definite values; pairs indicate ranges</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="posVector3CoordinateType">
      <xs:attribute name="vel_time_unit" type="velTimeUnitType" use="optional"/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type `pixelCoordsType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | The pixel coordinates type |

| | |
|---|---|
| Diagram |  |
| Type | extension of coordsType |
| Type hierarchy | • stcBaseType<br>  • coordsType<br>  • pixelCoordsType |
| Used by | Element PixelCoords |
| Model | GenCoordinate , Pixel |
| Children | GenCoordinate, Pixel |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | required |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

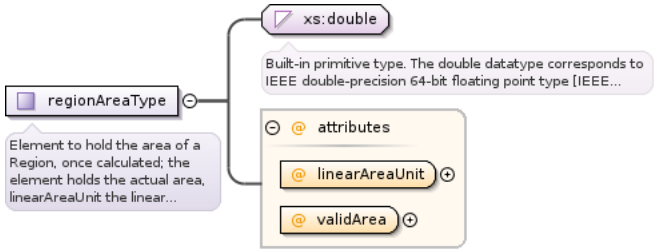
Source

```
<xs:complexType name="pixelCoordsType">
  <xs:annotation>
    <xs:documentation>The pixel coordinates type</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="coordsType">
      <xs:sequence minOccurs="0" maxOccurs="unbounded">
        <xs:element ref="Pixel"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type `regionAreaType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

| | |
|---|---|
| Annotations | Element to hold the area of a Region, once calculated; the element holds the actual area, linearAreaUnit the linear units of the of the area (i.e., it should be squared to get the proper units of the area), and validArea indicates whether the area has been calculated properly. |
| Diagram |  |
| Type | extension of xs:double |
| Used by | Element regionType/Area |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **linearAreaUnit** | posUnitType | | | required |
| **validArea** | xs:boolean | | | required |

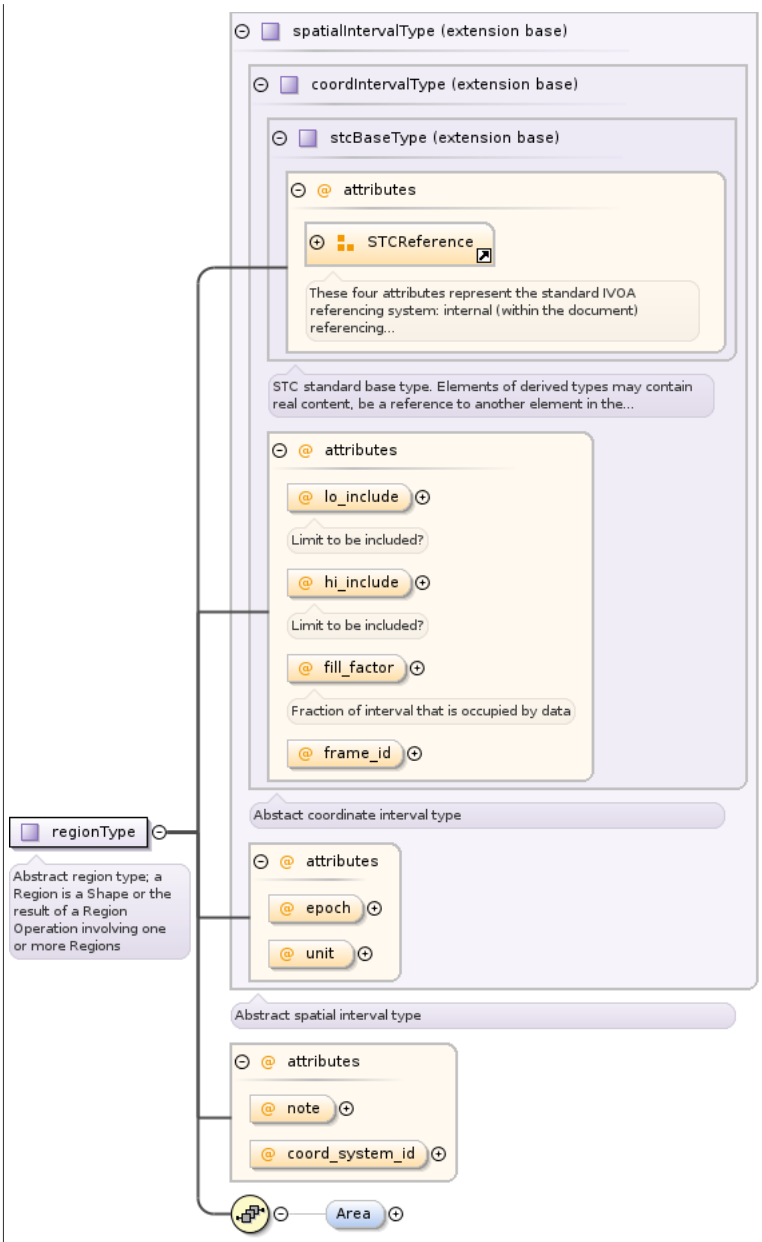
Source

```
<xs:complexType name="regionAreaType">
  <xs:annotation>
    <xs:documentation>Element to hold the area of a Region, once calculated; the element
 holds the actual area, linearAreaUnit the linear units of the of the area (i.e., it
 should be squared to get the proper units of the area), and validArea indicates whether
 the area has been calculated properly.</xs:documentation>
  </xs:annotation>
  <xs:simpleContent>
    <xs:extension base="xs:double">
      <xs:attribute name="linearAreaUnit" type="posUnitType" use="required"/>
      <xs:attribute name="validArea" type="xs:boolean" use="required"/>
    </xs:extension>
  </xs:simpleContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type `regionType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Abstract region type; a Region is a Shape or the result of a Region Operation involving one or more Regions |

| | |
|---|---|
| Diagram |  |
| Type | extension of spatialIntervalType |
| Type hierarchy | • stcBaseType<br>• coordIntervalType<br>• spatialIntervalType<br>• regionType |
| Used by | Complex Types: diffType, intersectionType, negationType, shapeType, unionType<br>Elements: Region, Region2 |
| Model | Area{0,1} |
| Children | Area |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |

| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | | Fraction of interval that is occupied by data | | | |
| | **frame_id** | xs:IDREF | | | optional |
| | **hi_include** | xs:boolean | | true | optional |
| | | Limit to be included? | | | |
| | **id** | xs:ID | | | optional |
| | **idref** | xs:IDREF | | | optional |
| | **lo_include** | xs:boolean | | true | optional |
| | | Limit to be included? | | | |
| | **note** | xs:string | | | optional |
| | **ucd** | xs:string | | | optional |
| | **unit** | posUnitType | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

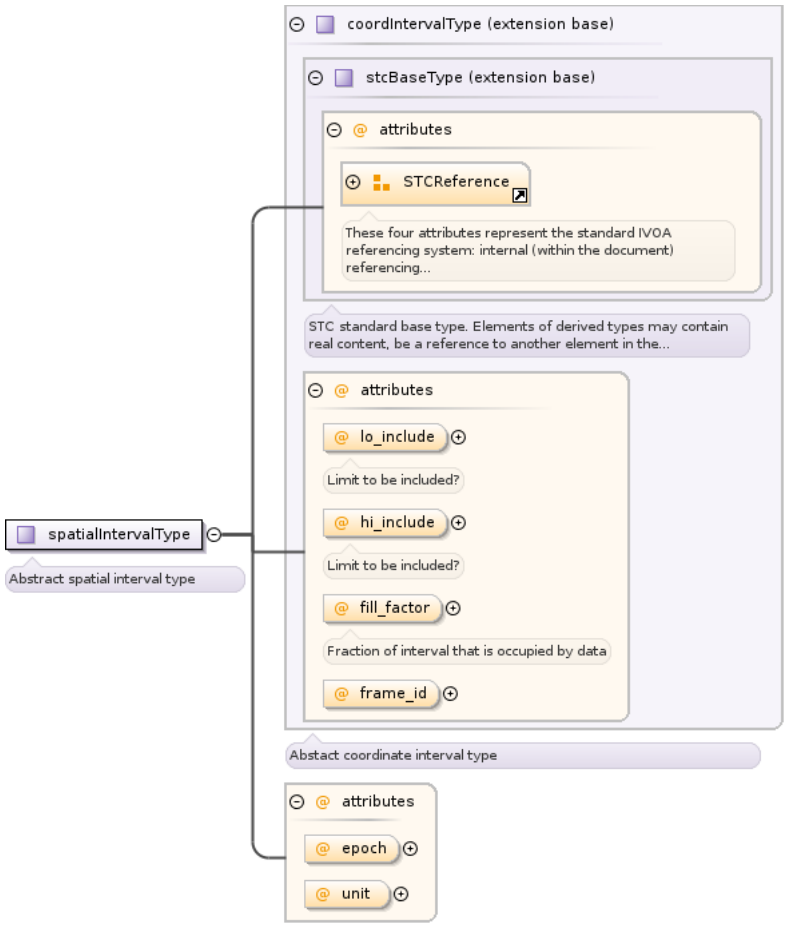
Source

```
<xs:complexType name="regionType">
  <xs:annotation>
    <xs:documentation>Abstract region type; a Region is a Shape or the result of a Region
 Operation involving one or more Regions</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="spatialIntervalType">
      <xs:sequence>
        <xs:element name="Area" type="regionAreaType" minOccurs="0"/>
      </xs:sequence>
      <xs:attribute name="note" type="xs:string" use="optional"/>
      <xs:attribute name="coord_system_id" type="xs:IDREF" use="optional"/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
|---|---|

## Complex Type `spatialIntervalType`

| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
|---|---|
| Annotations | Abstract spatial interval type |

| | |
|---|---|
| Diagram |  |
| Type | extension of coordIntervalType |
| Type hierarchy | • stcBaseType<br>• coordIntervalType<br>• spatialIntervalType |
| Properties | abstract: `true` |
| Used by | Complex Types: pos2VecIntervalType, pos3VecIntervalType, posScalarIntervalType, regionFileType, regionType, sphereType, velocityIntervalType |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | `Fraction of interval that is occupied by data` | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |

| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:complexType name="spatialIntervalType" abstract="true">
  <xs:annotation>
    <xs:documentation>Abstract spatial interval type</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="coordIntervalType">
      <xs:attribute name="epoch" type="xs:decimal" use="optional"/>
      <xs:attribute name="unit" type="posUnitType" use="optional"/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

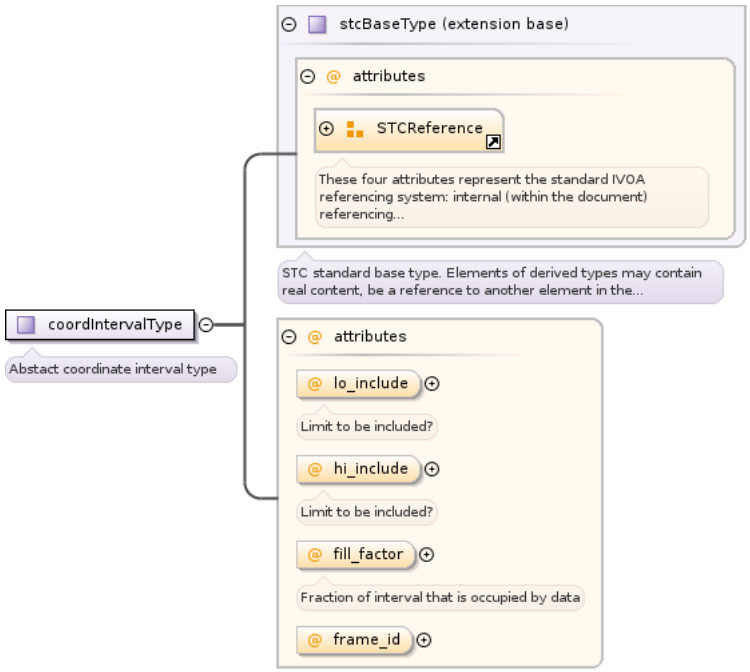
Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Complex Type `coordIntervalType`

Namespace: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

Annotations: `Abstact coordinate interval type`

Diagram




Type: extension of stcBaseType

Type hierarchy:

- stcBaseType
  - coordIntervalType

Used by

| | |
|---|---|
| Complex Types | coord2VecIntervalType, coord3VecIntervalType, coordScalarIntervalType, spatialIntervalType, timeIntervalType, uCoord2VecIntervalType, uCoord3VecIntervalType, uCoordScalarIntervalType |
| Elements | CoordInterval, PixelCoordInterval, PositionInterval, VelocityInterval |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | `Fraction of interval that is occupied by data` | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **id** | xs:ID | | | optional |

| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **idref** | xs:IDREF | | | optional |
| | **lo_include** | xs:boolean | | true | optional |
| | | Limit to be included? | | | |
| | **ucd** | xs:string | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

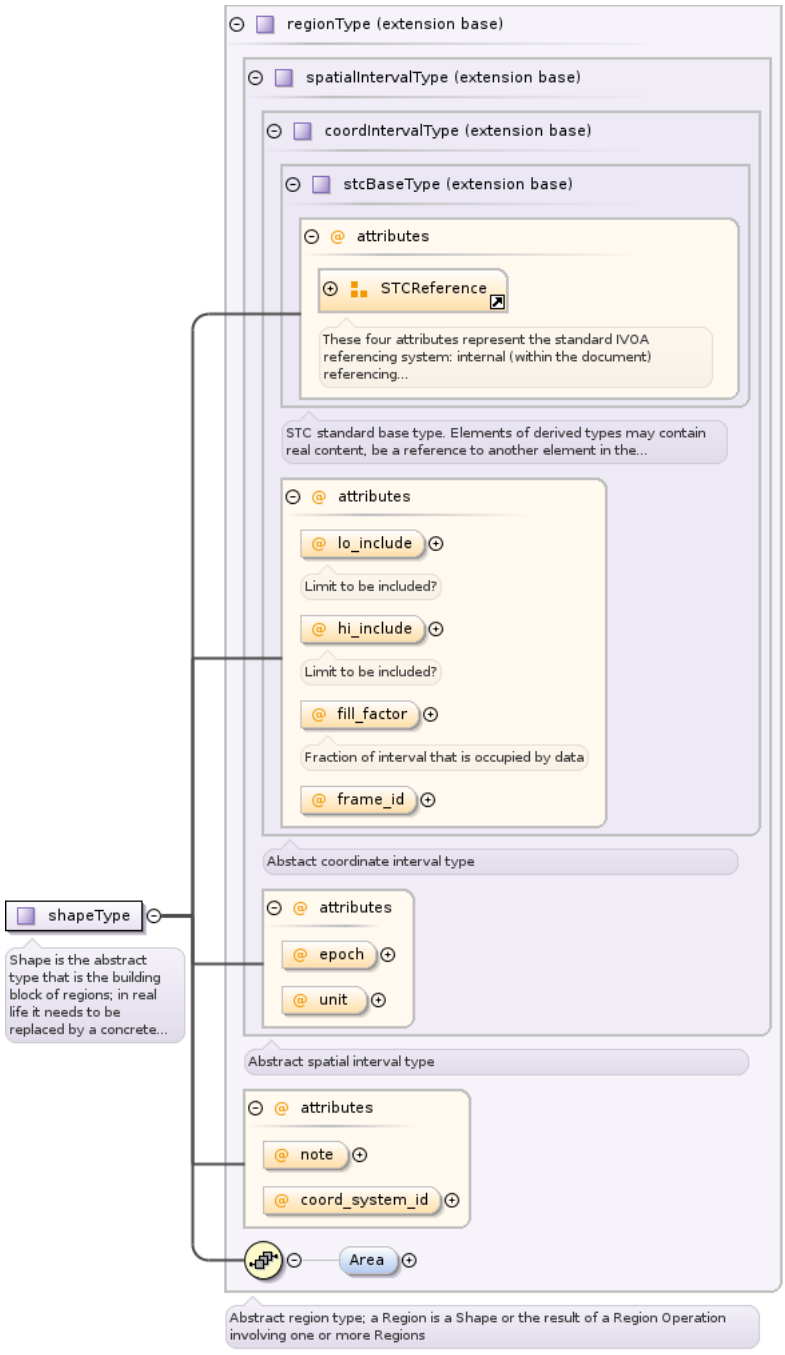
Source

```
<xs:complexType name="coordIntervalType">
  <xs:annotation>
    <xs:documentation>Abstact coordinate interval type</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="stcBaseType">
      <xs:attribute name="lo_include" type="xs:boolean" default="true">
        <xs:annotation>
          <xs:documentation>Limit to be included?</xs:documentation>
        </xs:annotation>
      </xs:attribute>
      <xs:attribute name="hi_include" type="xs:boolean" default="true">
        <xs:annotation>
          <xs:documentation>Limit to be included?</xs:documentation>
        </xs:annotation>
      </xs:attribute>
      <xs:attribute name="fill_factor" type="xs:float" use="optional" default="1.0">
        <xs:annotation>
          <xs:documentation>Fraction of interval that is occupied by data</
xs:documentation>
        </xs:annotation>
      </xs:attribute>
      <xs:attribute name="frame_id" type="xs:IDREF" use="optional"/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
|---|---|

## Complex Type shapeType

| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
|---|---|
| Annotations | Shape is the abstract type that is the building block of regions; in real life it needs to be replaced by a concrete shape |

| | |
|---|---|
| Diagram |  |
| Type | extension of regionType |
| Type hierarchy | • stcBaseType<br>• coordIntervalType<br>• spatialIntervalType<br>• regionType<br>• shapeType |
| Used by | Complex Types allSkyType, boxType, circleType, convexHullType, convexType, ellipseType, polygonType, sectorType, skyIndexType |
| Model | Area{0,1} |
| Children | Area |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | `Fraction of interval that is occupied by data` | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **note** | xs:string | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

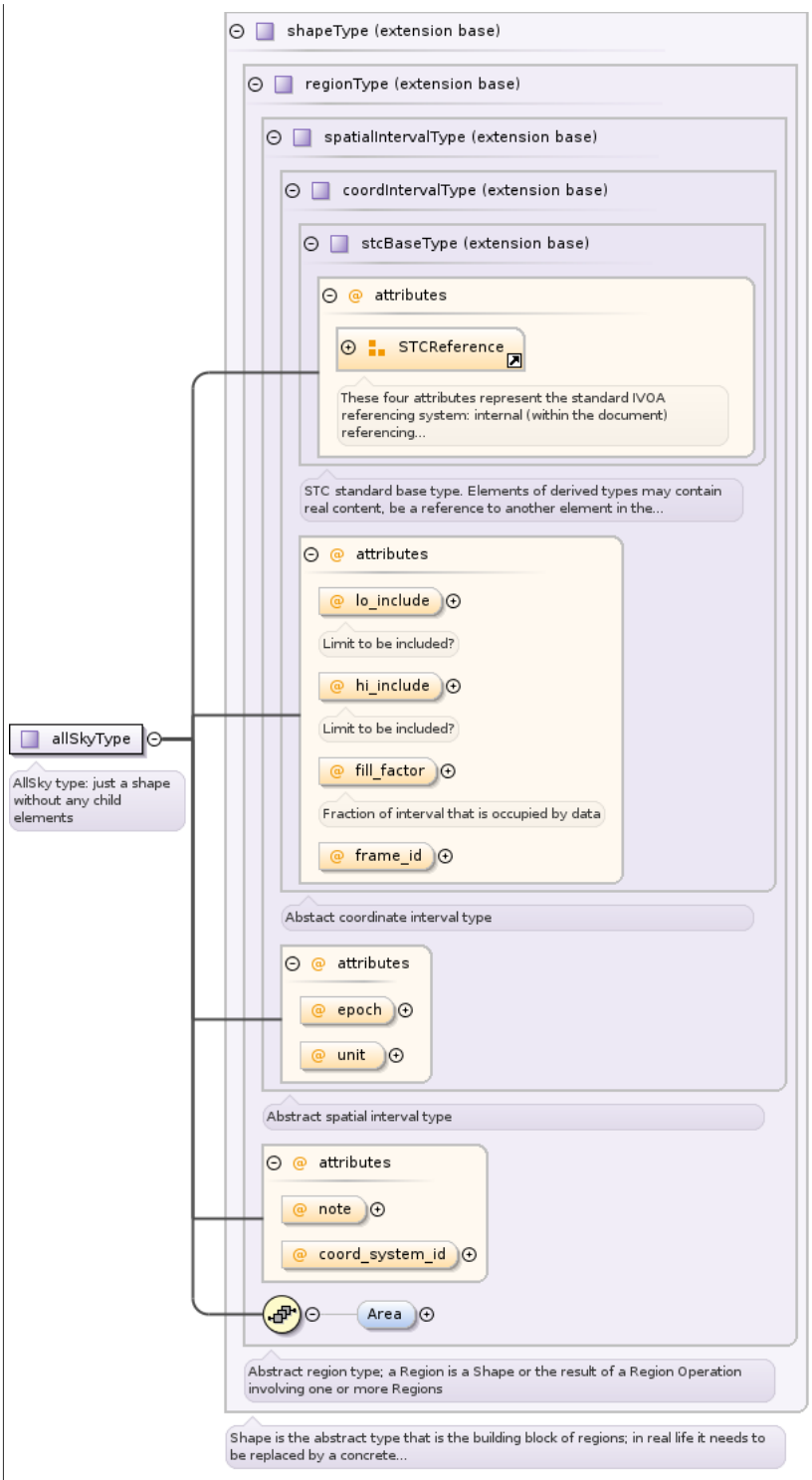
Source

```
<xs:complexType name="shapeType">
  <xs:annotation>
    <xs:documentation>Shape is the abstract type that is the building block of regions; in
 real life it needs to be replaced by a concrete shape</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="regionType"/>
  </xs:complexContent>
</xs:complexType>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Complex Type `allSkyType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `AllSky type: just a shape without any child elements` |

| | |
|---|---|
| Diagram |  |
| Type | extension of shapeType |
| Type hierarchy | • stcBaseType<br>• coordIntervalType<br>• spatialIntervalType<br>• regionType<br>• shapeType<br>• allSkyType |
| Used by | Elements AllSky, AllSky2 |

| | |
|---|---|
| Model | Area{0,1} |
| Children | Area |
| Attributes | |

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | `Fraction of interval that is occupied by data` | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **note** | xs:string | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

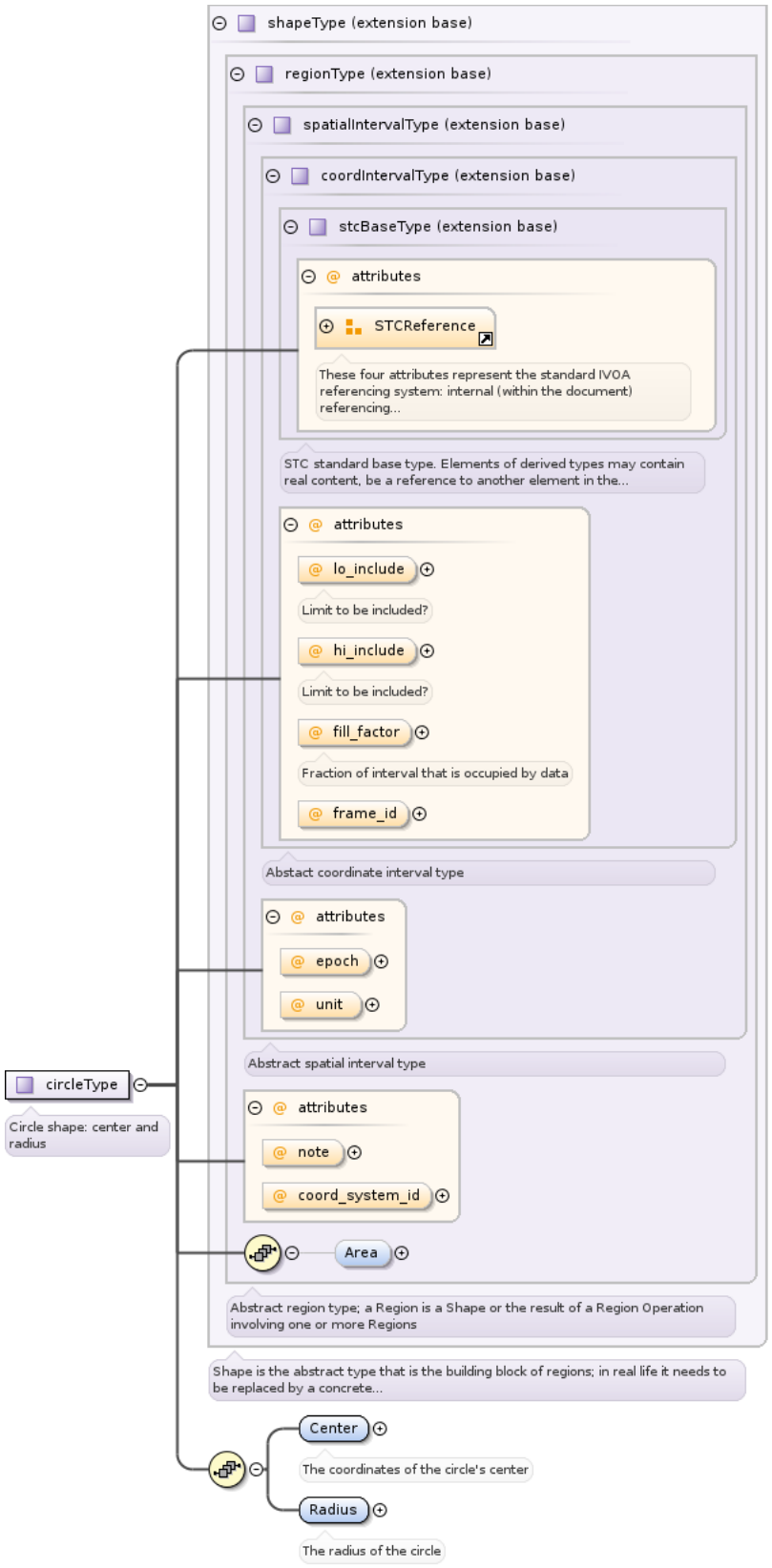
Source

```
<xs:complexType name="allSkyType">
  <xs:annotation>
    <xs:documentation>AllSky type: just a shape without any child elements</
xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="shapeType"/>
  </xs:complexContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type `circleType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `Circle shape: center and radius` |

| | |
|---|---|
| Diagram |  |
| Type | extension of shapeType |
| Type hierarchy | • stcBaseType<br>  • coordIntervalType<br>  • spatialIntervalType |

<table>
<tr><td></td><td>
<ul><li>regionType<ul><li>shapeType<ul><li>circleType</li></ul></li></ul></li></ul>
</td></tr>
<tr><td>Used by</td><td>Elements Circle, Circle2</td></tr>
<tr><td>Model</td><td>Area{0,1} , Center , Radius</td></tr>
<tr><td>Children</td><td>Area, Center, Radius</td></tr>
<tr><td>Attributes</td><td>
<table>
<tr><th>QName</th><th>Type</th><th>Fixed</th><th>Default</th><th>Use</th></tr>
<tr><td>IDREF_type</td><td>xs:string</td><td></td><td></td><td>optional</td></tr>
<tr><td>ID_type</td><td>xs:string</td><td></td><td></td><td>optional</td></tr>
<tr><td>coord_system_id</td><td>xs:IDREF</td><td></td><td></td><td>optional</td></tr>
<tr><td>epoch</td><td>xs:decimal</td><td></td><td></td><td>optional</td></tr>
<tr><td>fill_factor</td><td>xs:float</td><td></td><td>1.0</td><td>optional</td></tr>
<tr><td></td><td colspan="4">Fraction of interval that is occupied by data</td></tr>
<tr><td>frame_id</td><td>xs:IDREF</td><td></td><td></td><td>optional</td></tr>
<tr><td>hi_include</td><td>xs:boolean</td><td></td><td>true</td><td>optional</td></tr>
<tr><td></td><td colspan="4">Limit to be included?</td></tr>
<tr><td>id</td><td>xs:ID</td><td></td><td></td><td>optional</td></tr>
<tr><td>idref</td><td>xs:IDREF</td><td></td><td></td><td>optional</td></tr>
<tr><td>lo_include</td><td>xs:boolean</td><td></td><td>true</td><td>optional</td></tr>
<tr><td></td><td colspan="4">Limit to be included?</td></tr>
<tr><td>note</td><td>xs:string</td><td></td><td></td><td>optional</td></tr>
<tr><td>ucd</td><td>xs:string</td><td></td><td></td><td>optional</td></tr>
<tr><td>unit</td><td>posUnitType</td><td></td><td></td><td>optional</td></tr>
<tr><td>xlink:href</td><td>xs:anyURI</td><td></td><td></td><td>optional</td></tr>
<tr><td>xlink:type</td><td>restriction of xs:NMTOKEN</td><td></td><td>simple</td><td>optional</td></tr>
</table>
</td></tr>
<tr><td>Source</td><td>

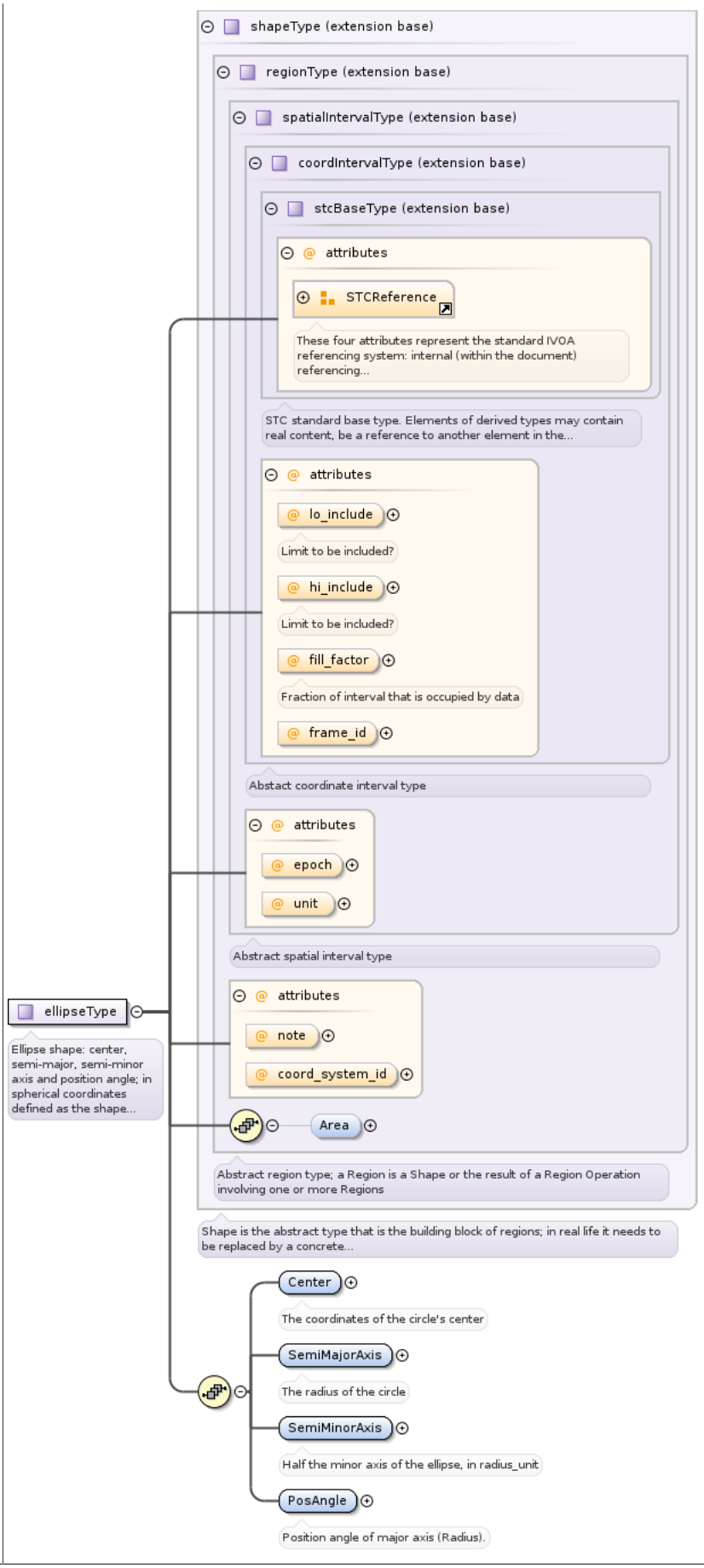
```
<xs:complexType name="circleType">
  <xs:annotation>
    <xs:documentation>Circle shape: center and radius</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="shapeType">
      <xs:sequence>
        <xs:element name="Center" type="double2Type" nillable="true">
          <xs:annotation>
            <xs:documentation>The coordinates of the circle's center</xs:documentation>
          </xs:annotation>
        </xs:element>
        <xs:element name="Radius" type="double1Type" nillable="true">
          <xs:annotation>
            <xs:documentation>The radius of the circle</xs:documentation>
          </xs:annotation>
        </xs:element>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

</td></tr>
<tr><td>Schema location</td><td>http://www.ivoa.net/xml/STC/stc-v1.30.xsd</td></tr>
</table>

## Complex Type `ellipseType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Ellipse shape: center, semi-major, semi-minor axis and position angle; in spherical coordinates defined as the shape cut out of the sphere by a cone with elliptical cross-section |

Diagram


shapeType (extension base)
regionType (extension base)
spatialIntervalType (extension base)
coordIntervalType (extension base)
stcBaseType (extension base)
attributes
STCReference
These four attributes represent the standard IVOA referencing system: internal (within the document) referencing...
STC standard base type. Elements of derived types may contain real content, be a reference to another element in the...
attributes
lo_include
Limit to be included?
hi_include
Limit to be included?
fill_factor
Fraction of interval that is occupied by data
frame_id
Abstact coordinate interval type
attributes
epoch
unit
Abstract spatial interval type
attributes
note
coord_system_id
Area
Abstract region type; a Region is a Shape or the result of a Region Operation involving one or more Regions
Shape is the abstract type that is the building block of regions; in real life it needs to be replaced by a concrete...
ellipseType
Ellipse shape: center, semi-major, semi-minor axis and position angle; in spherical coordinates defined as the shape...
Center
The coordinates of the circle's center
SemiMajorAxis
The radius of the circle
SemiMinorAxis
Half the minor axis of the ellipse, in radius_unit
PosAngle
Position angle of major axis (Radius).

| | |
|---|---|
| Type | extension of shapeType |
| Type hierarchy | • stcBaseType<br>• coordIntervalType<br>• spatialIntervalType<br>• regionType<br>• shapeType<br>• ellipseType |
| Used by | Elements Ellipse, Ellipse2 |
| Model | Area{0,1} , Center , SemiMajorAxis , SemiMinorAxis , PosAngle |
| Children | Area, Center, PosAngle, SemiMajorAxis, SemiMinorAxis |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | Fraction of interval that is occupied by data | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **note** | xs:string | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

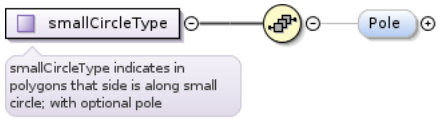
Source

```
<xs:complexType name="ellipseType">
  <xs:annotation>
    <xs:documentation>Ellipse shape: center, semi-major, semi-minor axis and position
 angle; in spherical coordinates defined as the shape cut out of the sphere by a cone with
 elliptical cross-section</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="shapeType">
      <xs:sequence>
        <xs:element name="Center" type="double2Type" nillable="true">
          <xs:annotation>
            <xs:documentation>The coordinates of the circle's center</xs:documentation>
          </xs:annotation>
        </xs:element>
        <xs:element name="SemiMajorAxis" type="double1Type" nillable="true">
          <xs:annotation>
            <xs:documentation>The radius of the circle</xs:documentation>
          </xs:annotation>
        </xs:element>
        <xs:element name="SemiMinorAxis" type="double1Type" nillable="true">
          <xs:annotation>
            <xs:documentation>Half the minor axis of the ellipse, in radius_unit</
xs:documentation>
          </xs:annotation>
        </xs:element>
        <xs:element name="PosAngle" type="posAngleType" nillable="true">
          <xs:annotation>
            <xs:documentation>Position angle of major axis (Radius).</xs:documentation>
          </xs:annotation>
        </xs:element>
```

```
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
|---|---|

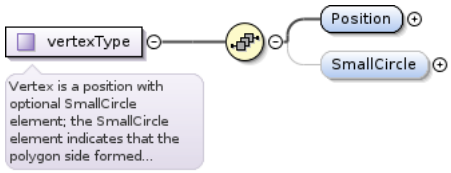
## Complex Type `smallCircleType`

| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
|---|---|
| Annotations | `smallCircleType indicates in polygons that side is along small circle; with optional pole` |
| Diagram |  |
| Used by | Element vertexType/SmallCircle |
| Model | Pole{0,1} |
| Children | Pole |
| Source | |

```
<xs:complexType name="smallCircleType">
  <xs:annotation>
    <xs:documentation>smallCircleType indicates in polygons that side is along small
 circle; with optional pole</xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="Pole" type="double2Type" nillable="true" minOccurs="0"/>
  </xs:sequence>
</xs:complexType>
```

| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
|---|---|

## Complex Type `vertexType`

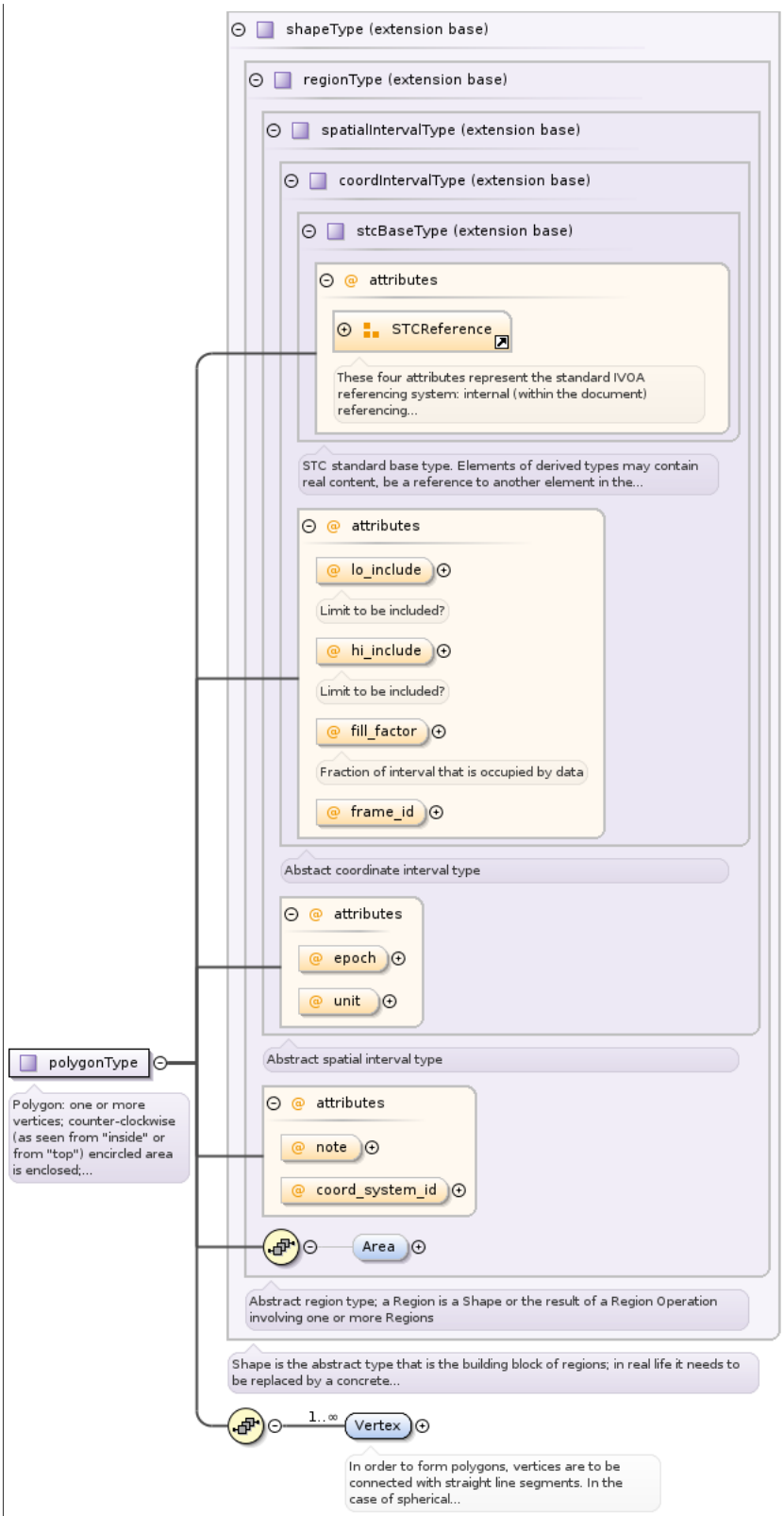
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
|---|---|
| Annotations | `Vertex is a position with optional SmallCircle element; the SmallCircle element indicates that the polygon side formed by that vertex and its predecessor vertex is a small circle, rather than a great circle; SmallCircle has no meaning in Cartesian coordinates` |
| Diagram |  |
| Used by | Element polygonType/Vertex |
| Model | Position , SmallCircle{0,1} |
| Children | Position, SmallCircle |
| Source | |

```
<xs:complexType name="vertexType">
  <xs:annotation>
    <xs:documentation>Vertex is a position with optional SmallCircle element; the
 SmallCircle element indicates that the polygon side formed by that vertex and its
 predecessor vertex is a small circle, rather than a great circle; SmallCircle has no
 meaning in Cartesian coordinates</xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="Position" type="double2Type" nillable="true"/>
    <xs:element name="SmallCircle" type="smallCircleType" nillable="true" minOccurs="0"/>
  </xs:sequence>
</xs:complexType>
```

| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
|---|---|

## Complex Type `polygonType`

| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
|---|---|
| Annotations | `Polygon: one or more vertices; counter-clockwise (as seen from "inside" or from "top") encircled area is enclosed; sides should span less than 180 deg in each coordinate if spherical; a polygon may not intersect itself` |

| | |
|---|---|
| Diagram |  |
| Type | extension of shapeType |
| Type hierarchy | • stcBaseType<br>  • coordIntervalType<br>  • spatialIntervalType<br>  • regionType |

| | |
|---|---|
| | • shapeType<br>• polygonType |
| Used by | Elements Polygon, Polygon2 |
| Model | Area{0,1} , Vertex+ |
| Children | Area, Vertex |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | `Fraction of interval that is occupied by data` | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **note** | xs:string | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

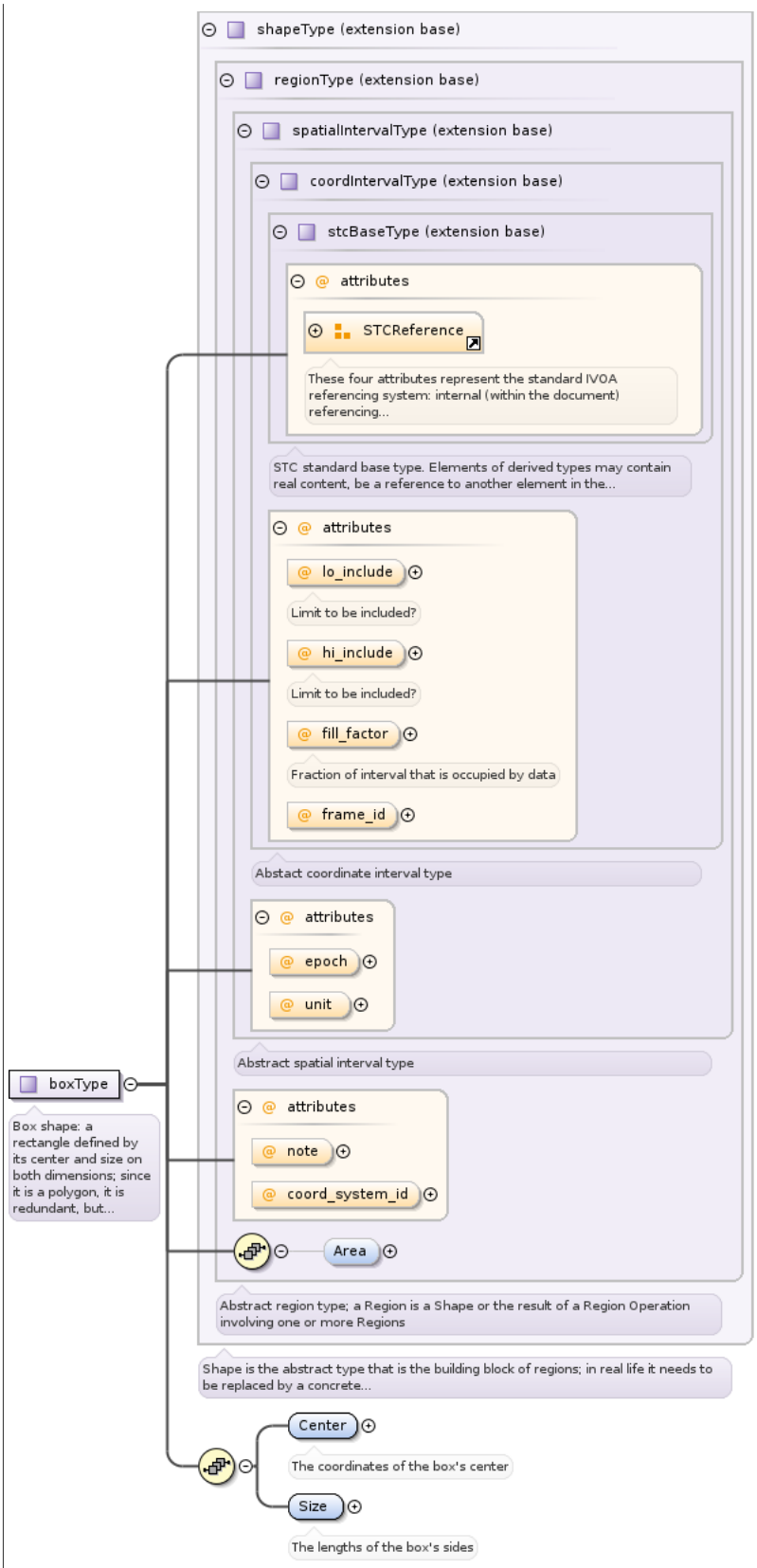
Source

```
<xs:complexType name="polygonType">
  <xs:annotation>
    <xs:documentation>Polygon: one or more vertices; counter-clockwise (as seen from
 "inside" or from "top") encircled area is enclosed; sides should span less than 180 deg
 in each coordinate if spherical; a polygon may not intersect itself</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="shapeType">
      <xs:sequence>
        <xs:element name="Vertex" type="vertexType" maxOccurs="unbounded">
          <xs:annotation>
            <xs:documentation>In order to form polygons, vertices are to be connected
 with straight line segments. In the case of spherical coordinates: greatcircle segments;
 if a smallCircle element si present, the vertex and its predecessor are to be connected
 with a smallcircle, by default in the CoordSys that is referenced; optionally, a pole
 may be specified (other than the CoordSys pole) that defines the smallcircle system</
xs:documentation>
          </xs:annotation>
        </xs:element>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type boxType

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `Box shape: a rectangle defined by its center and size on both dimensions; since it is a polygon, it is redundant, but simple rectangles with great circle sides are awkward to define in spherical coordinates` |

| | |
|---|---|
| Diagram |  |
| Type | extension of shapeType |
| Type hierarchy | • stcBaseType<br>  • coordIntervalType<br>  • spatialIntervalType |

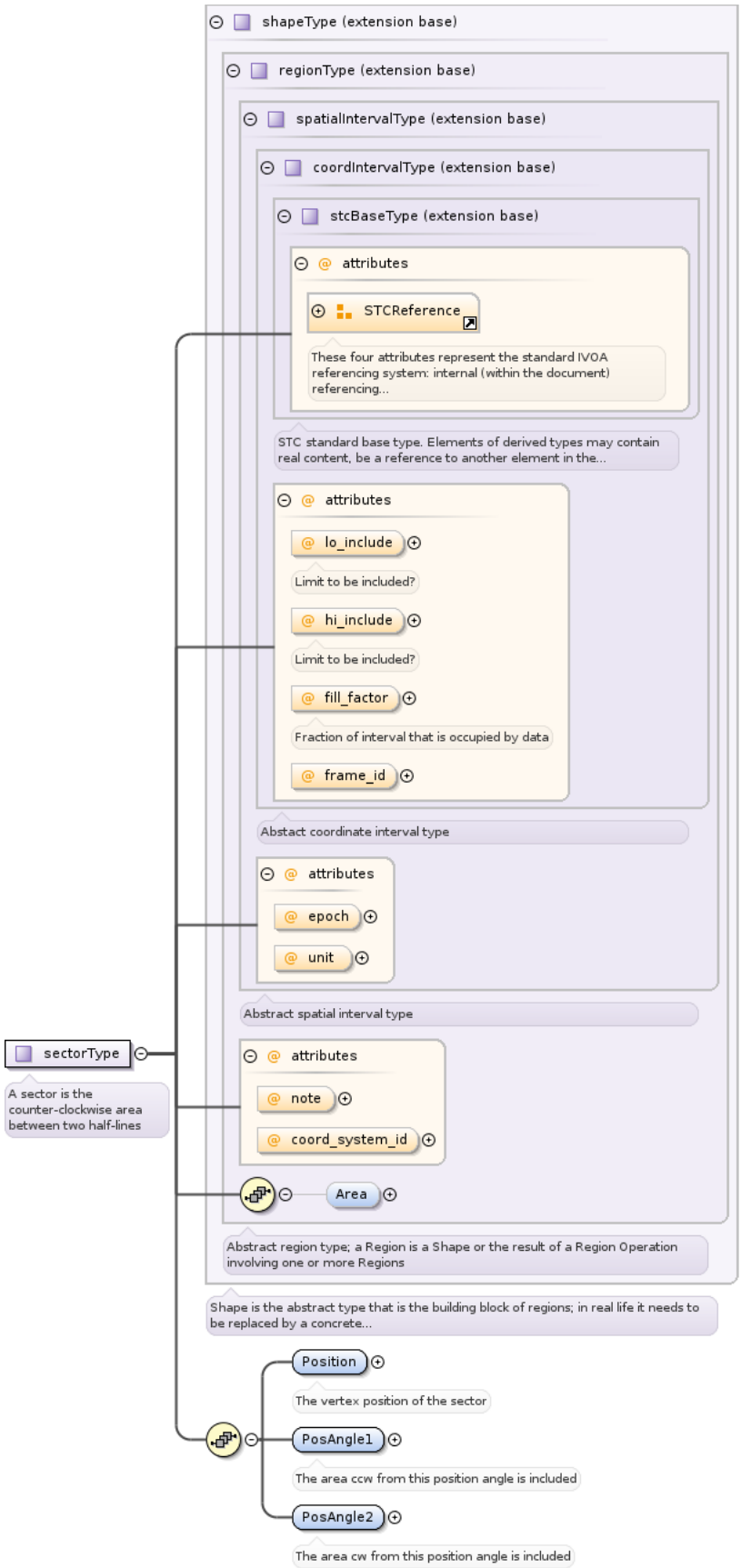
<table>
<tr><td></td><td>
<ul><li>regionType<ul><li>shapeType<ul><li>boxType</li></ul></li></ul></li></ul>
</td></tr>
<tr><td>Used by</td><td>Elements Box, Box2</td></tr>
<tr><td>Model</td><td>Area{0,1} , Center , Size</td></tr>
<tr><td>Children</td><td>Area, Center, Size</td></tr>
<tr><td>Attributes</td><td>
<table>
<tr><th>QName</th><th>Type</th><th>Fixed</th><th>Default</th><th>Use</th></tr>
<tr><td>IDREF_type</td><td>xs:string</td><td></td><td></td><td>optional</td></tr>
<tr><td>ID_type</td><td>xs:string</td><td></td><td></td><td>optional</td></tr>
<tr><td>coord_system_id</td><td>xs:IDREF</td><td></td><td></td><td>optional</td></tr>
<tr><td>epoch</td><td>xs:decimal</td><td></td><td></td><td>optional</td></tr>
<tr><td>fill_factor</td><td>xs:float</td><td></td><td>1.0</td><td>optional</td></tr>
<tr><td></td><td colspan="4">Fraction of interval that is occupied by data</td></tr>
<tr><td>frame_id</td><td>xs:IDREF</td><td></td><td></td><td>optional</td></tr>
<tr><td>hi_include</td><td>xs:boolean</td><td></td><td>true</td><td>optional</td></tr>
<tr><td></td><td colspan="4">Limit to be included?</td></tr>
<tr><td>id</td><td>xs:ID</td><td></td><td></td><td>optional</td></tr>
<tr><td>idref</td><td>xs:IDREF</td><td></td><td></td><td>optional</td></tr>
<tr><td>lo_include</td><td>xs:boolean</td><td></td><td>true</td><td>optional</td></tr>
<tr><td></td><td colspan="4">Limit to be included?</td></tr>
<tr><td>note</td><td>xs:string</td><td></td><td></td><td>optional</td></tr>
<tr><td>ucd</td><td>xs:string</td><td></td><td></td><td>optional</td></tr>
<tr><td>unit</td><td>posUnitType</td><td></td><td></td><td>optional</td></tr>
<tr><td>xlink:href</td><td>xs:anyURI</td><td></td><td></td><td>optional</td></tr>
<tr><td>xlink:type</td><td>restriction of xs:NMTOKEN</td><td></td><td>simple</td><td>optional</td></tr>
</table>
</td></tr>
<tr><td>Source</td><td>

```
<xs:complexType name="boxType">
  <xs:annotation>
    <xs:documentation>Box shape: a rectangle defined by its center and size on both
 dimensions; since it is a polygon, it is redundant, but simple rectangles with great
 circle sides are awkward to define in spherical coordinates</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="shapeType">
      <xs:sequence>
        <xs:element name="Center" type="double2Type" nillable="true">
          <xs:annotation>
            <xs:documentation>The coordinates of the box's center</xs:documentation>
          </xs:annotation>
        </xs:element>
        <xs:element name="Size" type="double2Type" nillable="true">
          <xs:annotation>
            <xs:documentation>The lengths of the box's sides</xs:documentation>
          </xs:annotation>
        </xs:element>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

</td></tr>
<tr><td>Schema location</td><td>http://www.ivoa.net/xml/STC/stc-v1.30.xsd</td></tr>
</table>

## Complex Type `sectorType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | A sector is the counter-clockwise area between two half-lines |

| | |
|---|---|
| Diagram |  |
| Type | extension of shapeType |
| Type hierarchy | • stcBaseType |

- coordIntervalType
  - spatialIntervalType
    - regionType
      - shapeType
        - sectorType

| | |
|---|---|
| Used by | Elements Sector, Sector2 |
| Model | Area{0,1} , Position , PosAngle1 , PosAngle2 |
| Children | Area, PosAngle1, PosAngle2, Position |

Attributes

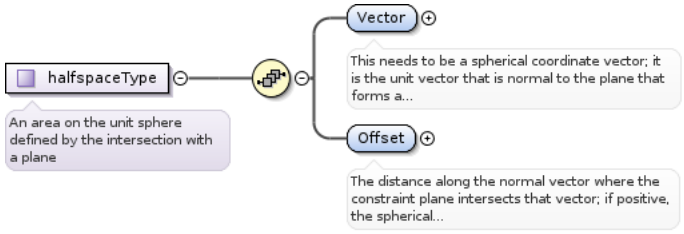
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | `Fraction of interval that is occupied by data` | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **note** | xs:string | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:complexType name="sectorType">
  <xs:annotation>
    <xs:documentation>A sector is the counter-clockwise area between two half-lines</
xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="shapeType">
      <xs:sequence>
        <xs:element name="Position" type="double2Type">
          <xs:annotation>
            <xs:documentation>The vertex position of the sector</xs:documentation>
          </xs:annotation>
        </xs:element>
        <xs:element name="PosAngle1" type="posAngleType">
          <xs:annotation>
            <xs:documentation>The area ccw from this position angle is included</
xs:documentation>
          </xs:annotation>
        </xs:element>
        <xs:element name="PosAngle2" type="posAngleType">
          <xs:annotation>
            <xs:documentation>The area cw from this position angle is included</
xs:documentation>
          </xs:annotation>
        </xs:element>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

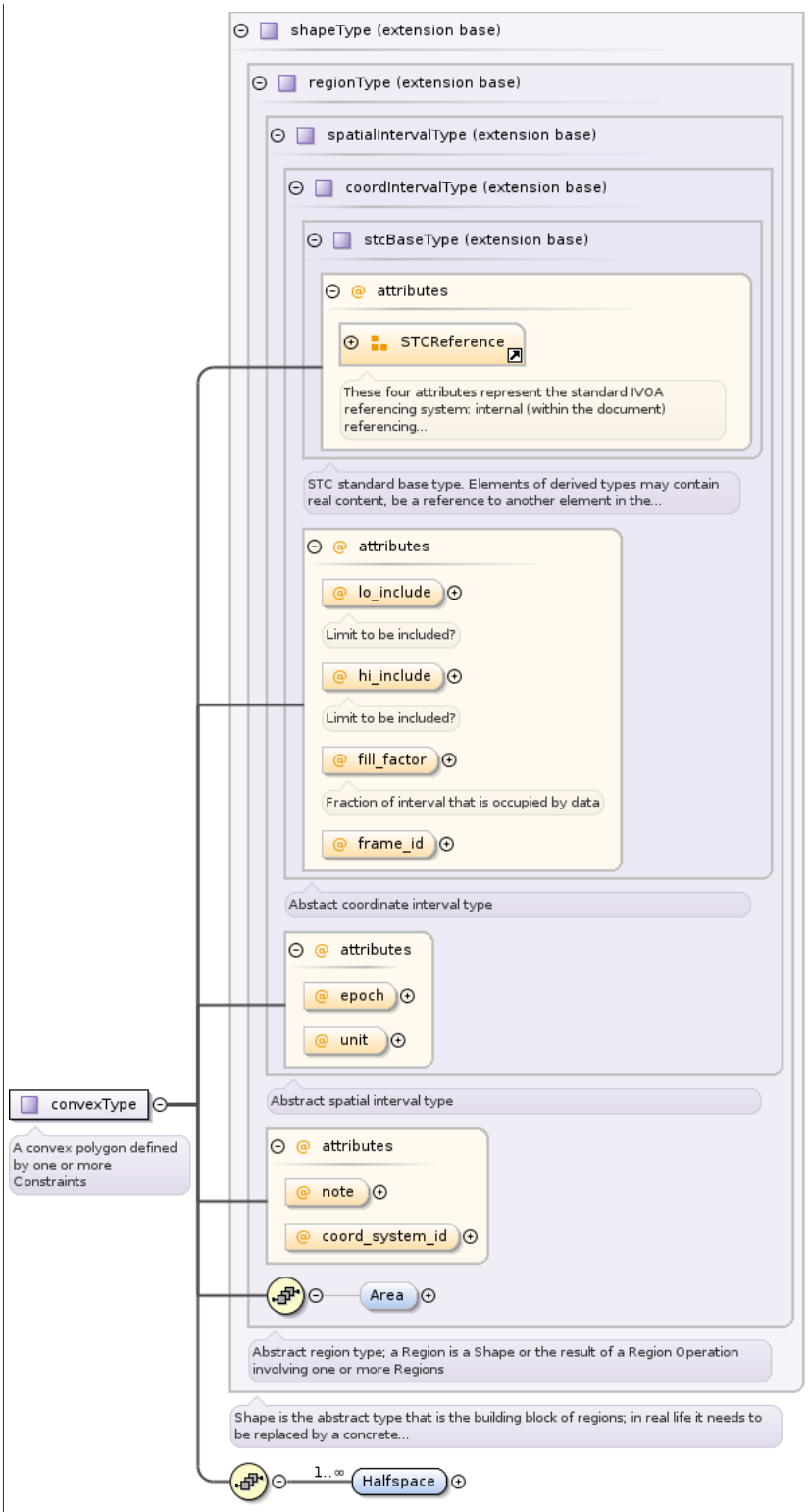
| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type `halfspaceType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | An area on the unit sphere defined by the intersection with a plane |
| Diagram |  |
| Used by | Element convexType/Halfspace |
| Model | Vector , Offset |
| Children | Offset, Vector |
| Source | <xs:complexType name="halfspaceType"><br><xs:annotation><br><xs:documentation>An area on the unit sphere defined by the intersection with a plane</xs:documentation><br></xs:annotation><br><xs:sequence><br><xs:element name="Vector" type="double3Type" nillable="true"><br><xs:annotation><br><xs:documentation>This needs to be a spherical coordinate vector; it is the unit vector that is normal to the plane that forms a constraint for a convex</xs:documentation><br></xs:annotation><br></xs:element><br><xs:element name="Offset" type="hsOffsetType"><br><xs:annotation><br><xs:documentation>The distance along the normal vector where the constraint plane intersects that vector; if positive, the spherical sector on the far side (seen from the center) is selected; if negative, the point of intersection is in the opposite direction of the vector, resulting in more than a hemisphere; the valid range is -1.0 to +1.0</xs:documentation><br></xs:annotation><br></xs:element><br></xs:sequence><br></xs:complexType> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type `convexType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | A convex polygon defined by one or more Constraints |

| | |
|---|---|
| Diagram |  |
| Type | extension of shapeType |
| Type hierarchy | • stcBaseType<br>• coordIntervalType<br>• spatialIntervalType<br>• regionType<br>• shapeType<br>• convexType |

| | |
|---|---|
| Used by | Elements Convex, Convex2 |
| Model | Area{0,1} , Halfspace+ |
| Children | Area, Halfspace |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | `Fraction of interval that is occupied by data` | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **note** | xs:string | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

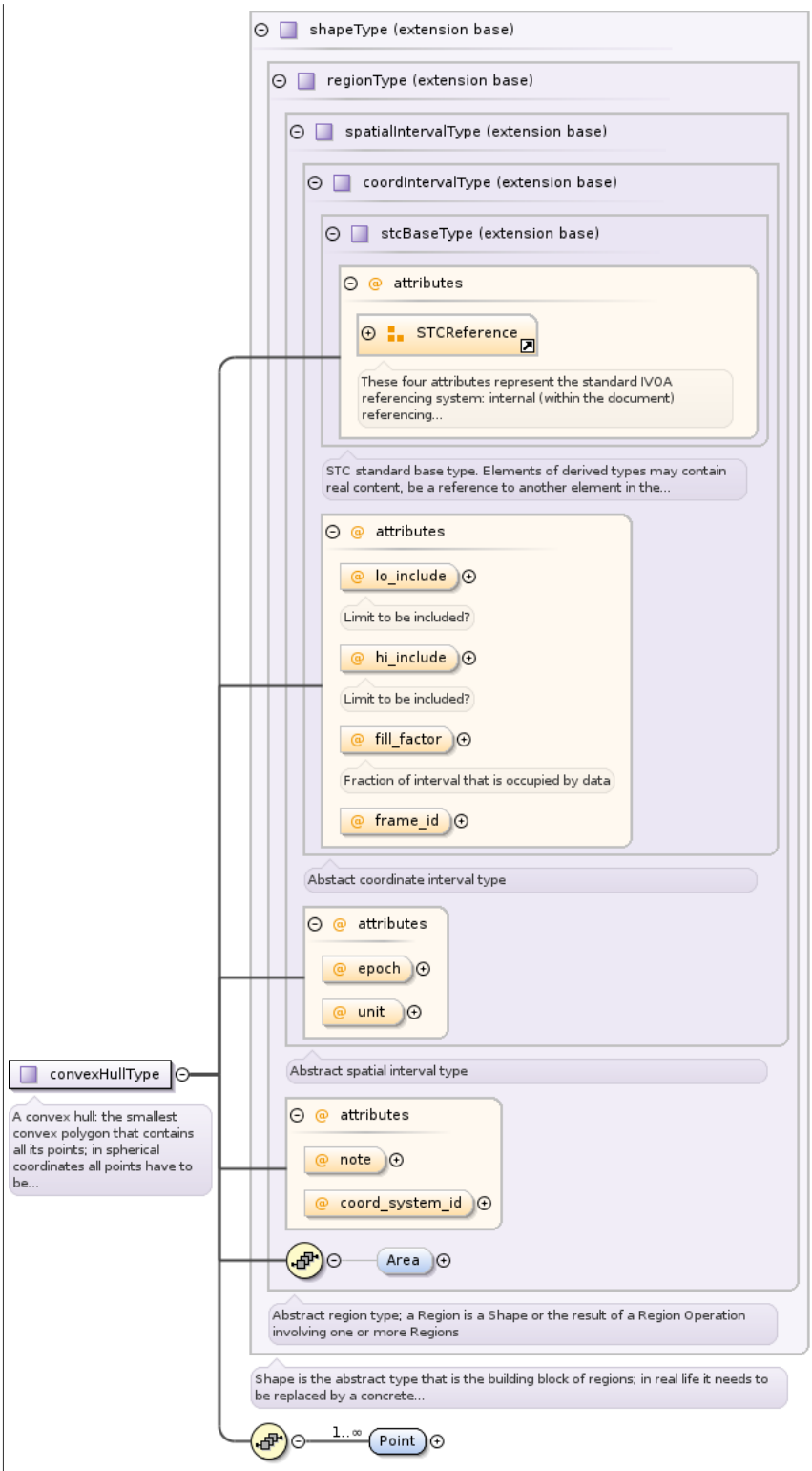
Source

```
<xs:complexType name="convexType">
  <xs:annotation>
    <xs:documentation>A convex polygon defined by one or more Constraints</
xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="shapeType">
      <xs:sequence>
        <xs:element name="Halfspace" type="halfspaceType" maxOccurs="unbounded"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Complex Type convexHullType

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `A convex hull: the smallest convex polygon that contains all its points; in spherical coordinates all points have to be contained within a hemisphere` |

| | |
|---|---|
| Diagram |  |
| Type | extension of shapeType |
| Type hierarchy | • stcBaseType<br>  • coordIntervalType<br>  • spatialIntervalType<br>  • regionType<br>  • shapeType<br>  • convexHullType |

| | |
|---|---|
| Used by | Elements ConvexHull, ConvexHull2 |
| Model | Area{0,1} , Point+ |
| Children | Area, Point |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | `Fraction of interval that is occupied by data` | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **note** | xs:string | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

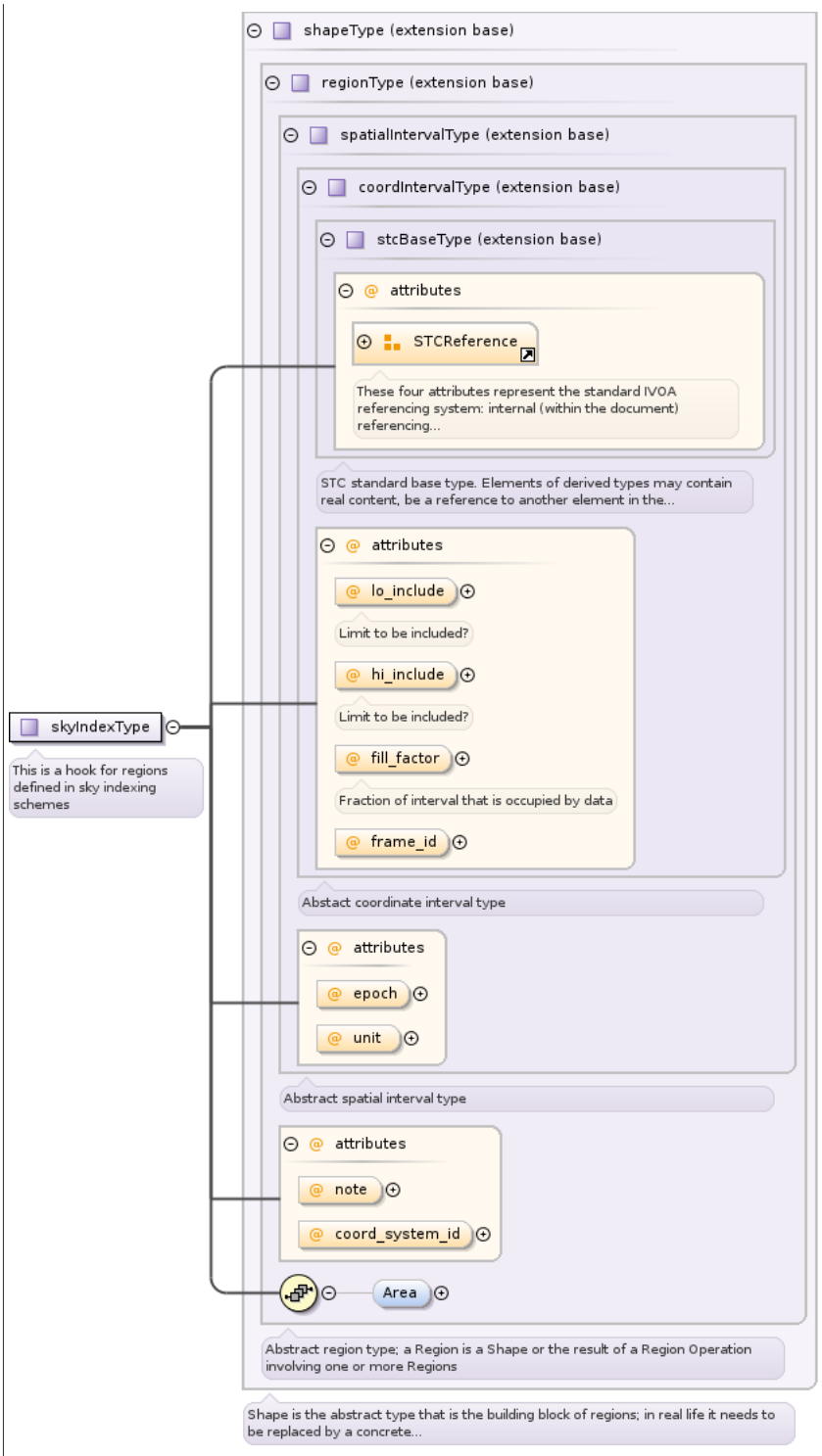
Source

```
<xs:complexType name="convexHullType">
  <xs:annotation>
    <xs:documentation>A convex hull: the smallest convex polygon that contains all its
 points; in spherical coordinates all points have to be contained within a hemisphere</
xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="shapeType">
      <xs:sequence>
        <xs:element name="Point" type="double3Type" nillable="true" maxOccurs="unbounded"/
>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type `skyIndexType`

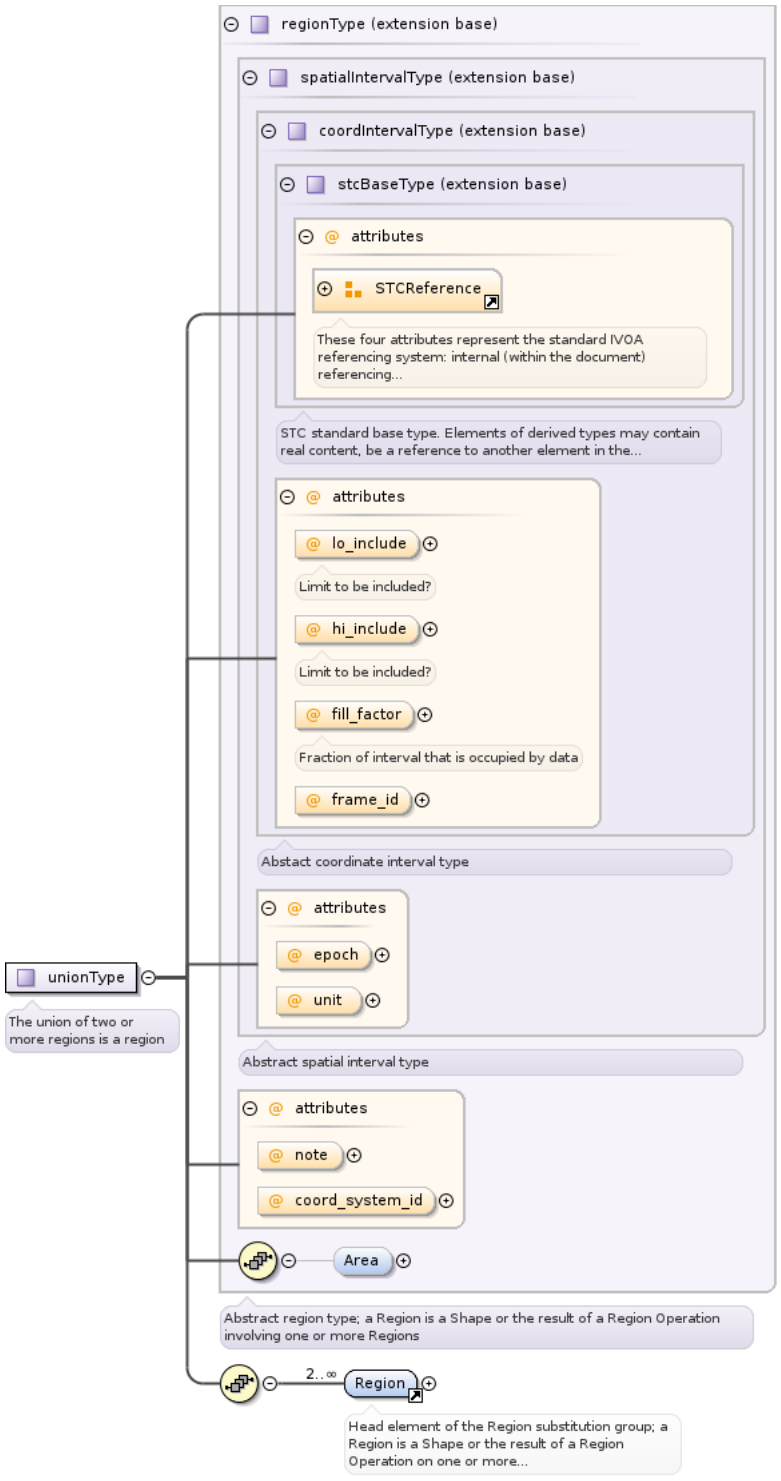
| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `This is a hook for regions defined in sky indexing schemes` |

| | |
|---|---|
| Diagram |  |
| Type | extension of shapeType |
| Type hierarchy | • stcBaseType<br>  • coordIntervalType<br>  • spatialIntervalType<br>  • regionType<br>  • shapeType<br>  • skyIndexType |
| Properties | abstract: `true` |

| | | | | | |
|---|---|---|---|---|---|
| Used by | Elements | SkyIndex, SkyIndex2 | | | |
| Model | Area{0,1} | | | | |
| Children | Area | | | | |
| Attributes | **QName** | **Type** | **Fixed** | **Default** | **Use** |
| | **IDREF_type** | xs:string | | | optional |
| | **ID_type** | xs:string | | | optional |
| | **coord_system_id** | xs:IDREF | | | optional |
| | **epoch** | xs:decimal | | | optional |
| | **fill_factor** | xs:float | | 1.0 | optional |
| | | `Fraction of interval that is occupied by data` | | | |
| | **frame_id** | xs:IDREF | | | optional |
| | **hi_include** | xs:boolean | | true | optional |
| | | `Limit to be included?` | | | |
| | **id** | xs:ID | | | optional |
| | **idref** | xs:IDREF | | | optional |
| | **lo_include** | xs:boolean | | true | optional |
| | | `Limit to be included?` | | | |
| | **note** | xs:string | | | optional |
| | **ucd** | xs:string | | | optional |
| | **unit** | posUnitType | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |
| Source | `<xs:complexType name="skyIndexType" abstract="true">`<br>`  <xs:annotation>`<br>`  <xs:documentation>This is a hook for regions defined in sky indexing schemes</xs:documentation>`<br>`  </xs:annotation>`<br>`  <xs:complexContent>`<br>`  <xs:extension base="shapeType"/>`<br>`  </xs:complexContent>`<br>`</xs:complexType>` | | | | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | | | | |

## Complex Type `unionType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `The union of two or more regions is a region` |

| | |
|---|---|
| Diagram |  |
| Type | extension of regionType |
| Type hierarchy | • stcBaseType<br>• coordIntervalType<br>• spatialIntervalType<br>• regionType<br>• unionType |
| Used by | Elements Union, Union2 |
| Model | Area{0,1} , Region{2,unbounded} |

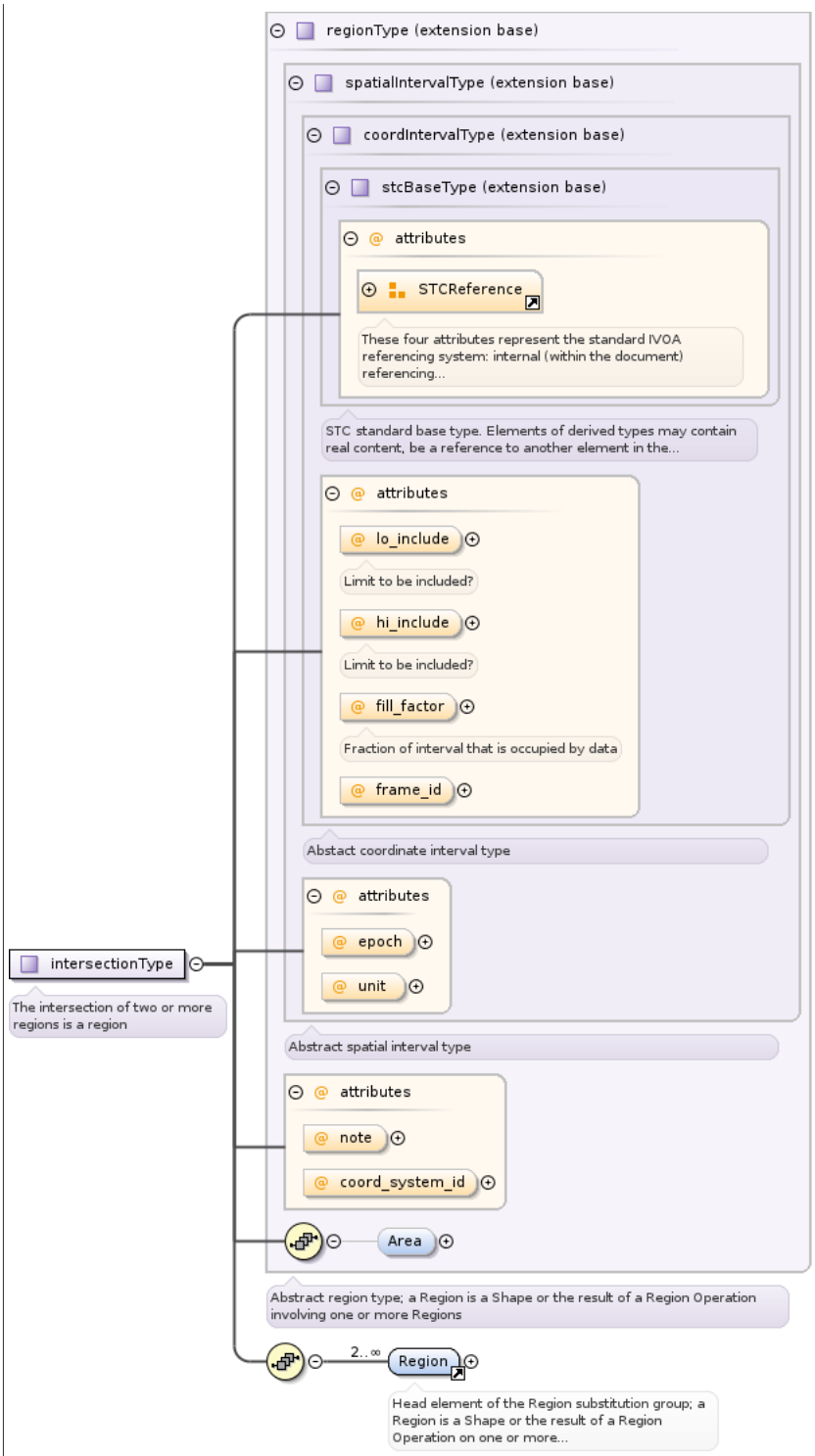
| | | | | | |
|---|---|---|---|---|---|
| Children | Area, Region | | | | |
| Attributes | **QName** | **Type** | **Fixed** | **Default** | **Use** |
| | **IDREF_type** | xs:string | | | optional |
| | **ID_type** | xs:string | | | optional |
| | **coord_system_id** | xs:IDREF | | | optional |
| | **epoch** | xs:decimal | | | optional |
| | **fill_factor** | xs:float | | 1.0 | optional |
| | | `Fraction of interval that is occupied by data` | | | |
| | **frame_id** | xs:IDREF | | | optional |
| | **hi_include** | xs:boolean | | true | optional |
| | | `Limit to be included?` | | | |
| | **id** | xs:ID | | | optional |
| | **idref** | xs:IDREF | | | optional |
| | **lo_include** | xs:boolean | | true | optional |
| | | `Limit to be included?` | | | |
| | **note** | xs:string | | | optional |
| | **ucd** | xs:string | | | optional |
| | **unit** | posUnitType | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |
| Source | | | | | |

```
<xs:complexType name="unionType">
  <xs:annotation>
    <xs:documentation>The union of two or more regions is a region</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="regionType">
      <xs:sequence>
        <xs:element ref="Region" minOccurs="2" maxOccurs="unbounded"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type `intersectionType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `The intersection of two or more regions is a region` |

| | |
|---|---|
| Diagram |  |
| Type | extension of regionType |
| Type hierarchy | • stcBaseType<br>• coordIntervalType<br>• spatialIntervalType<br>• regionType<br>• intersectionType |
| Used by | Elements Intersection, Intersection2 |
| Model | Area{0,1} , Region{2,unbounded} |

| | |
|---|---|
| Children | Area, Region |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | `Fraction of interval that is occupied by data` | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **note** | xs:string | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

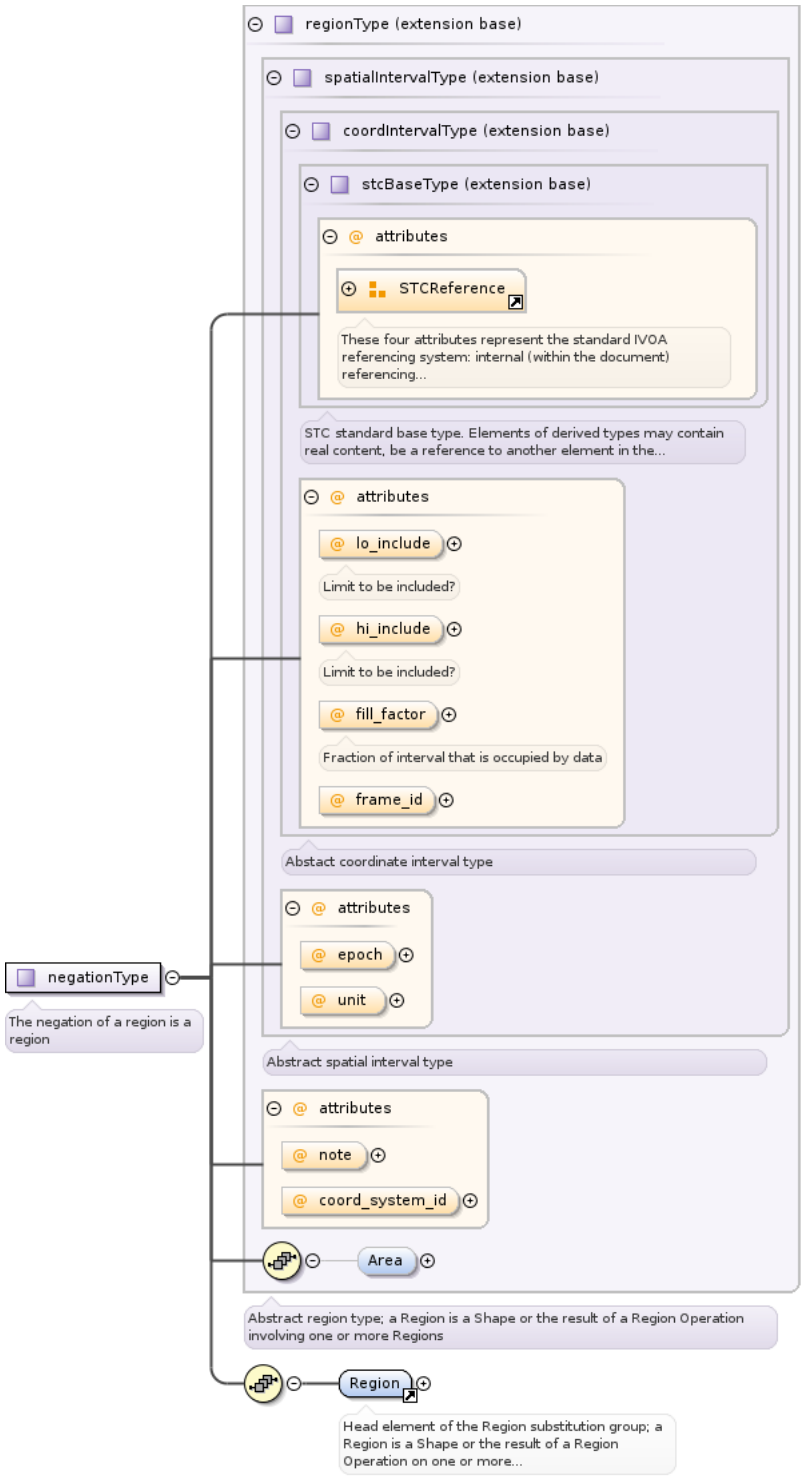
Source

```
<xs:complexType name="intersectionType">
  <xs:annotation>
    <xs:documentation>The intersection of two or more regions is a region</
xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="regionType">
      <xs:sequence>
        <xs:element ref="Region" minOccurs="2" maxOccurs="unbounded"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type `negationType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `The negation of a region is a region` |

| | |
|---|---|
| Diagram |  |
| Type | extension of regionType |
| Type hierarchy | • stcBaseType<br>• coordIntervalType<br>• spatialIntervalType<br>• regionType<br>• negationType |
| Used by | Elements Negation, Negation2 |
| Model | Area{0,1} , Region |

| | |
|---|---|
| Children | Area, Region |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | `Fraction of interval that is occupied by data` | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **note** | xs:string | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

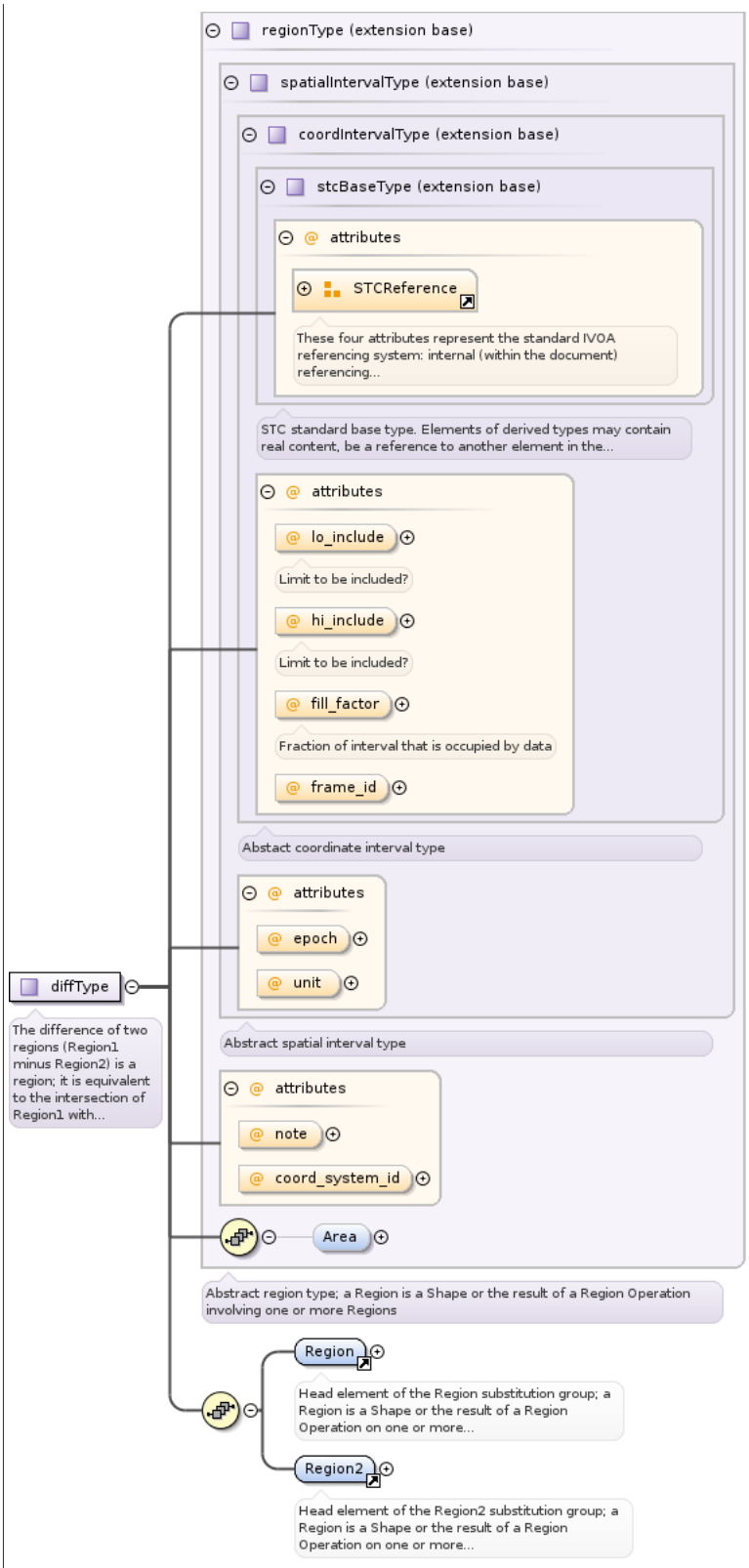
Source

```
<xs:complexType name="negationType">
  <xs:annotation>
    <xs:documentation>The negation of a region is a region</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="regionType">
      <xs:sequence>
        <xs:element ref="Region"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type `diffType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `The difference of two regions (Region1 minus Region2) is a region; it is equivalent to the intersection of Region1 with notRegion2` |

| | |
|---|---|
| Diagram |  |
| Type | extension of regionType |
| Type hierarchy | • stcBaseType<br>• coordIntervalType<br>• spatialIntervalType<br>• regionType |

| | |
|---|---|
| | • diffType |
| Used by | Elements Difference, Difference2 |
| Model | Area{0,1} , Region , Region2 |
| Children | Area, Region, Region2 |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | `Fraction of interval that is occupied by data` | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **note** | xs:string | | | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

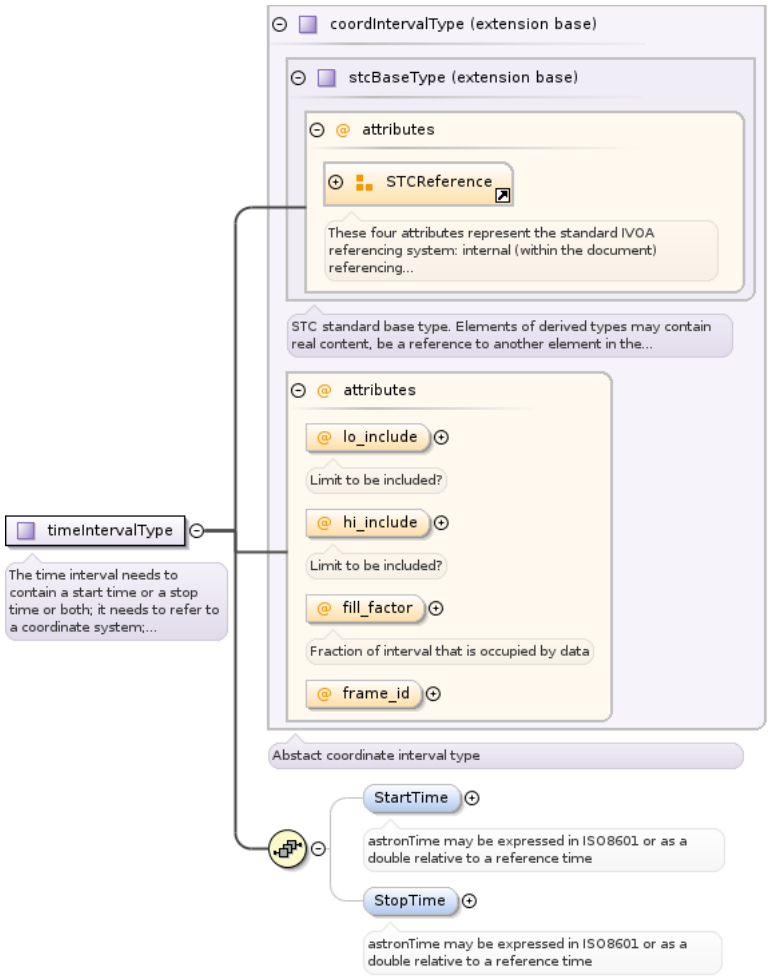
Source

```
<xs:complexType name="diffType">
  <xs:annotation>
    <xs:documentation>The difference of two regions (Region1 minus Region2) is a region;
 it is equivalent to the intersection of Region1 with notRegion2</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="regionType">
      <xs:sequence>
        <xs:element ref="Region"/>
        <xs:element ref="Region2"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type `timeIntervalType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `The time interval needs to contain a start time or a stop time or both; it needs to refer to a coordinate system; boundaries may or may not be inclusive` |

| | |
|---|---|
| Diagram |  |
| Type | extension of coordIntervalType |
| Type hierarchy | • stcBaseType<br>  • coordIntervalType<br>  • timeIntervalType |
| Used by | Element astroCoordAreaType/TimeInterval |
| Model | StartTime{0,1} , StopTime{0,1} |
| Children | StartTime, StopTime |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | `Fraction of interval that is occupied by data` | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |

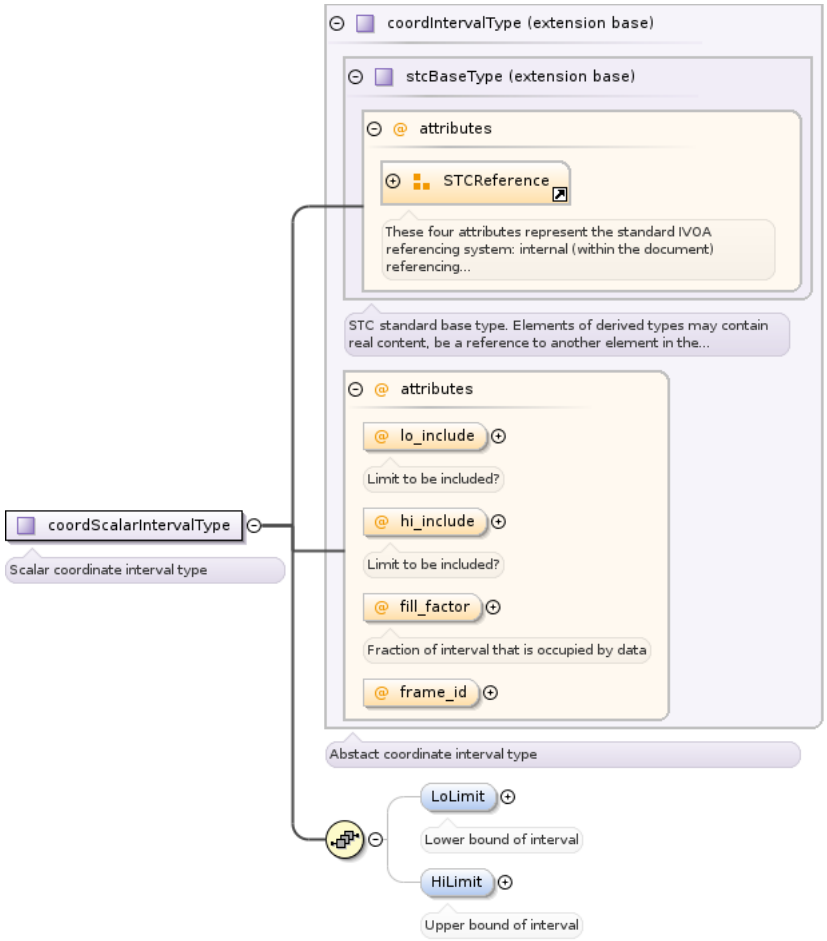
| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:complexType name="timeIntervalType">
  <xs:annotation>
    <xs:documentation>The time interval needs to contain a start time or a stop time or
 both; it needs to refer to a coordinate system; boundaries may or may not be inclusive</
xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="coordIntervalType">
      <xs:sequence>
        <xs:element name="StartTime" type="astronTimeType" nillable="true" minOccurs="0">
          <xs:annotation>
            <xs:documentation>astronTime may be expressed in ISO8601 or as a double
 relative to a reference time</xs:documentation>
          </xs:annotation>
        </xs:element>
        <xs:element name="StopTime" type="astronTimeType" nillable="true" minOccurs="0">
          <xs:annotation>
            <xs:documentation>astronTime may be expressed in ISO8601 or as a double
 relative to a reference time</xs:documentation>
          </xs:annotation>
        </xs:element>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Complex Type `coordScalarIntervalType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Scalar coordinate interval type |
| Diagram |  |
| Type | extension of coordIntervalType |

| | |
|---|---|
| Type hierarchy | • stcBaseType<br>  • coordIntervalType<br>  • coordScalarIntervalType |
| Used by | Element: PixelCoordScalarInterval<br>Complex Types: redshiftIntervalType, spectralIntervalType |
| Model | LoLimit{0,1} , HiLimit{0,1} |
| Children | HiLimit, LoLimit |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | `Fraction of interval that is occupied by data` | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

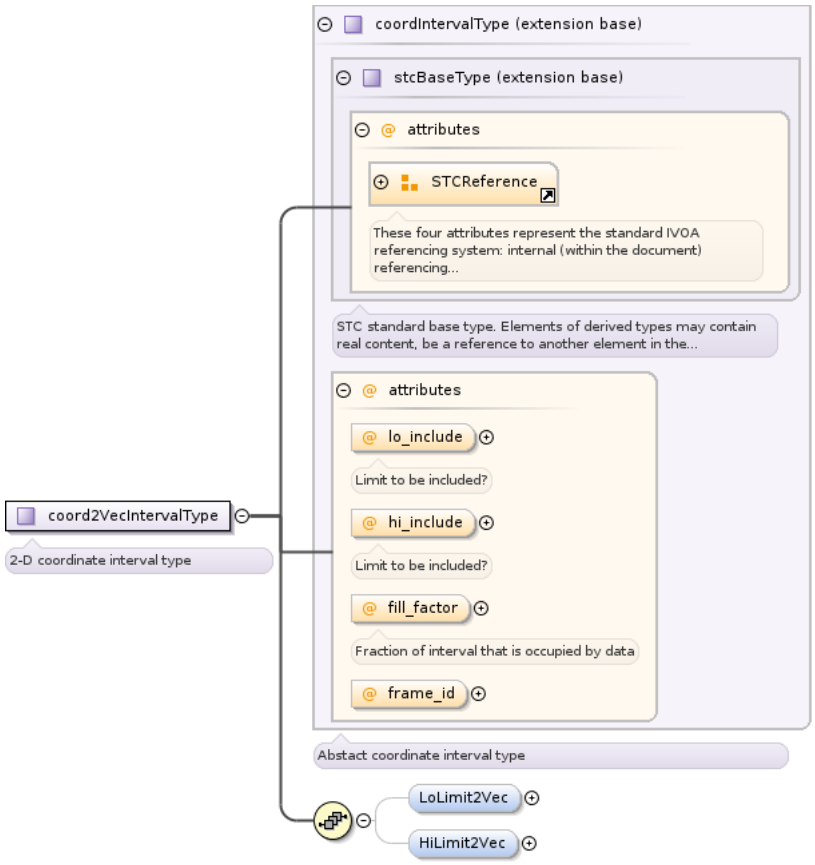
Source

```
<xs:complexType name="coordScalarIntervalType">
  <xs:annotation>
    <xs:documentation>Scalar coordinate interval type</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="coordIntervalType">
      <xs:sequence>
        <xs:element name="LoLimit" type="double1Type" nillable="true" minOccurs="0">
          <xs:annotation>
            <xs:documentation>Lower bound of interval</xs:documentation>
          </xs:annotation>
        </xs:element>
        <xs:element name="HiLimit" type="double1Type" nillable="true" minOccurs="0">
          <xs:annotation>
            <xs:documentation>Upper bound of interval</xs:documentation>
          </xs:annotation>
        </xs:element>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type `coord2VecIntervalType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `2-D coordinate interval type` |

| | |
|---|---|
| Diagram |  |
| Type | extension of coordIntervalType |
| Type hierarchy | • stcBaseType<br>• coordIntervalType<br>• coord2VecIntervalType |
| Used by | Element PixelCoord2VecInterval |
| Model | LoLimit2Vec{0,1} , HiLimit2Vec{0,1} |
| Children | HiLimit2Vec, LoLimit2Vec |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | `Fraction of interval that is occupied by data` | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

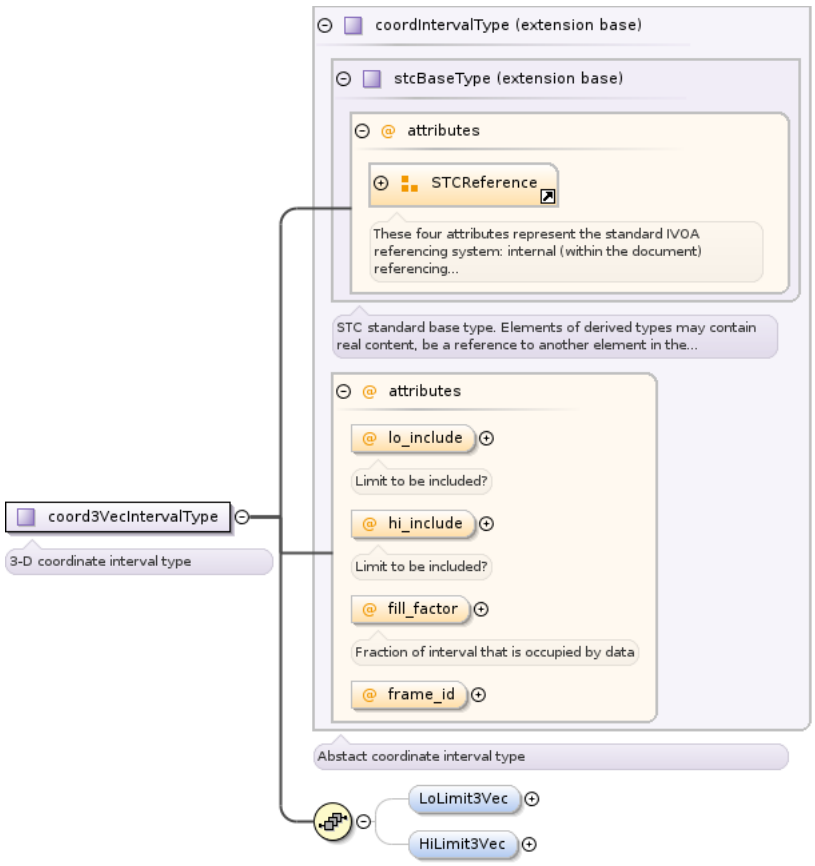
Source

```
<xs:complexType name="coord2VecIntervalType">
  <xs:annotation>
    <xs:documentation>2-D coordinate interval type</xs:documentation>
  </xs:annotation>
```

```
  <xs:complexContent>
    <xs:extension base="coordIntervalType">
      <xs:sequence>
        <xs:element name="LoLimit2Vec" type="double2Type" nillable="true" minOccurs="0"/>
        <xs:element name="HiLimit2Vec" type="double2Type" nillable="true" minOccurs="0"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type `coord3VecIntervalType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `3-D coordinate interval type` |
| Diagram |  |
| Type | extension of coordIntervalType |
| Type hierarchy | • stcBaseType<br>  • coordIntervalType<br>  • coord3VecIntervalType |
| Used by | Element PixelCoord3VecInterval |
| Model | LoLimit3Vec{0,1} , HiLimit3Vec{0,1} |
| Children | HiLimit3Vec, LoLimit3Vec |



Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | `Fraction of interval that is occupied by data` | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |

| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **id** | xs:ID | | | optional |
| | **idref** | xs:IDREF | | | optional |
| | **lo_include** | xs:boolean | | true | optional |
| | | `Limit to be included?` | | | |
| | **ucd** | xs:string | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

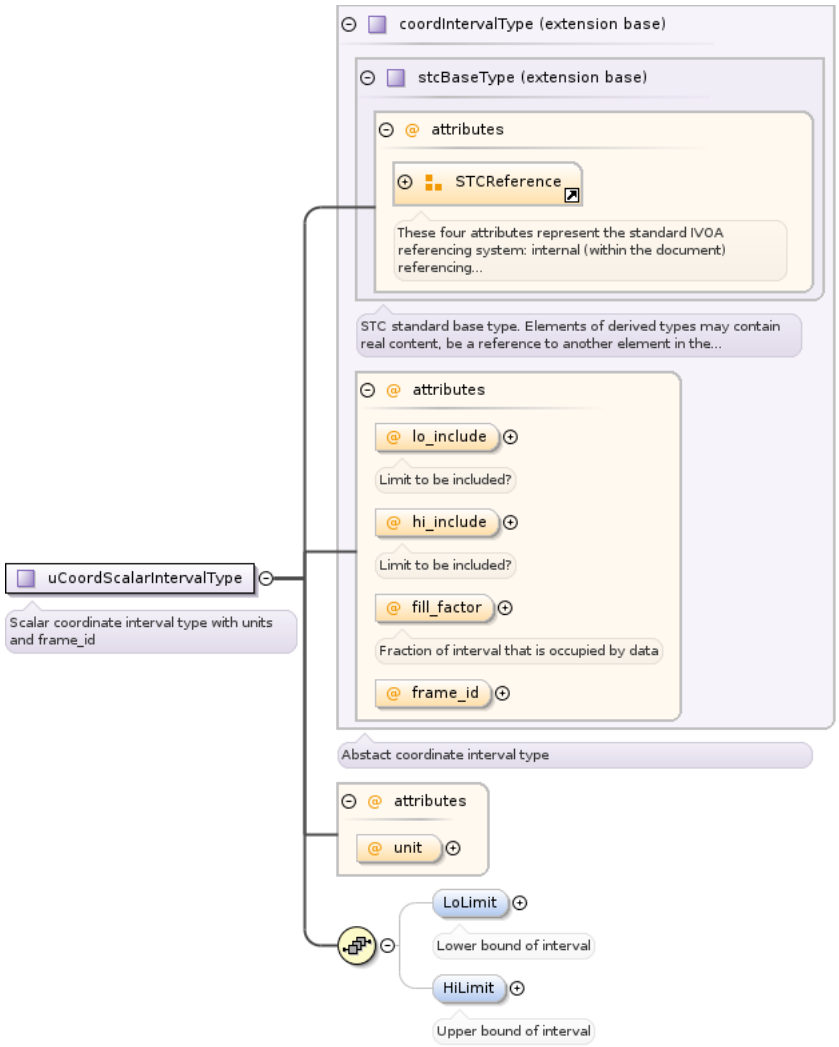
Source

```
<xs:complexType name="coord3VecIntervalType">
  <xs:annotation>
    <xs:documentation>3-D coordinate interval type</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="coordIntervalType">
      <xs:sequence>
        <xs:element name="LoLimit3Vec" type="double3Type" nillable="true" minOccurs="0"/>
        <xs:element name="HiLimit3Vec" type="double3Type" nillable="true" minOccurs="0"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Complex Type `uCoordScalarIntervalType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `Scalar coordinate interval type with units and frame_id` |

| | |
|---|---|
| Diagram |  |
| Type | extension of coordIntervalType |
| Type hierarchy | • stcBaseType<br>• coordIntervalType<br>• uCoordScalarIntervalType |
| Used by | Element CoordScalarInterval |
| Model | LoLimit{0,1} , HiLimit{0,1} |
| Children | HiLimit, LoLimit |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | `Fraction of interval that is occupied by data` | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **ucd** | xs:string | | | optional |

| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **unit** | unitType | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

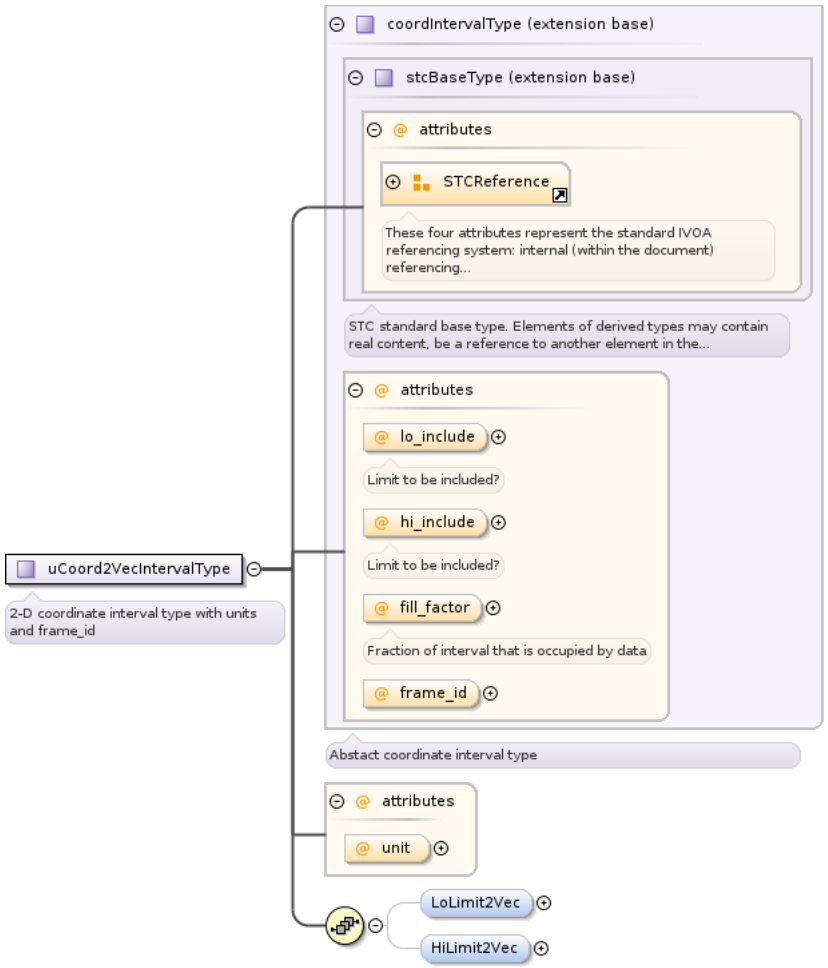
Source

```
<xs:complexType name="uCoordScalarIntervalType">
  <xs:annotation>
    <xs:documentation>Scalar coordinate interval type with units and frame_id</
xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="coordIntervalType">
      <xs:sequence>
        <xs:element name="LoLimit" type="double1Type" nillable="true" minOccurs="0">
          <xs:annotation>
            <xs:documentation>Lower bound of interval</xs:documentation>
          </xs:annotation>
        </xs:element>
        <xs:element name="HiLimit" type="double1Type" nillable="true" minOccurs="0">
          <xs:annotation>
            <xs:documentation>Upper bound of interval</xs:documentation>
          </xs:annotation>
        </xs:element>
      </xs:sequence>
      <xs:attribute name="unit" type="unitType" use="optional"/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
|---|---|

## Complex Type uCoord2VecIntervalType

| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
|---|---|
| Annotations | 2-D coordinate interval type with units and frame_id |

| | |
|---|---|
| Diagram |  |
| Type | extension of coordIntervalType |
| Type hierarchy | • stcBaseType<br>• coordIntervalType<br>• uCoord2VecIntervalType |
| Used by | Element Coord2VecInterval |
| Model | LoLimit2Vec{0,1} , HiLimit2Vec{0,1} |
| Children | HiLimit2Vec, LoLimit2Vec |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | `Fraction of interval that is occupied by data` | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **ucd** | xs:string | | | optional |
| **unit** | unitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |

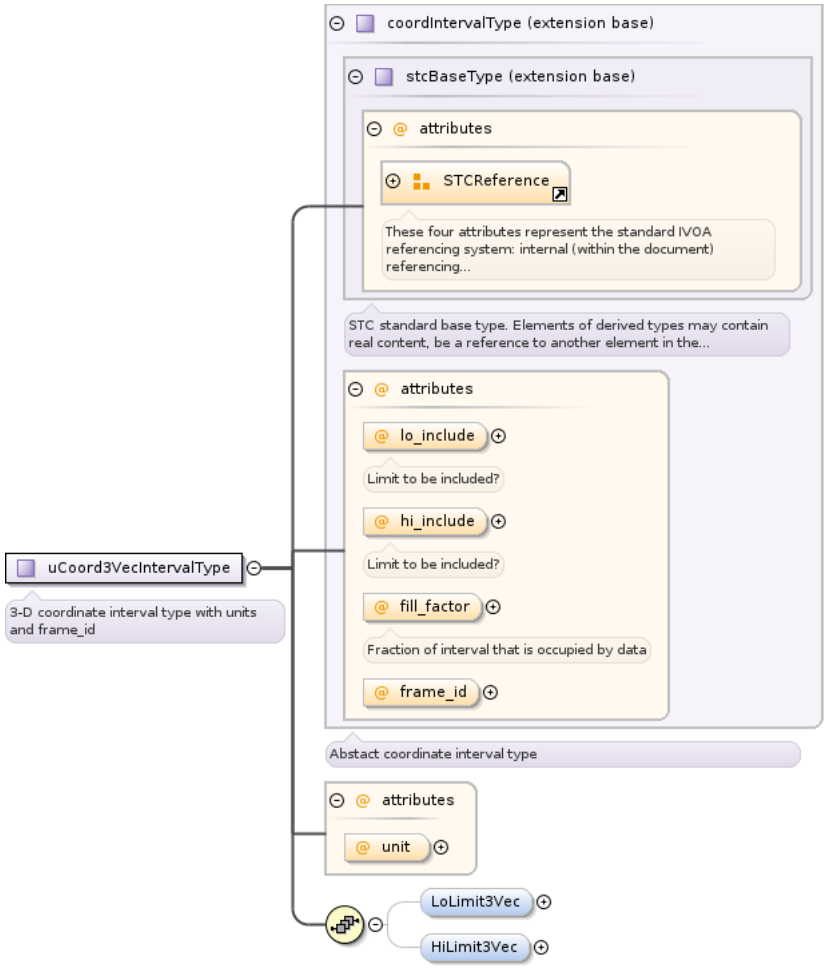
| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:complexType name="uCoord2VecIntervalType">
  <xs:annotation>
    <xs:documentation>2-D coordinate interval type with units and frame_id</
xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="coordIntervalType">
      <xs:sequence>
        <xs:element name="LoLimit2Vec" type="double2Type" nillable="true" minOccurs="0"/>
        <xs:element name="HiLimit2Vec" type="double2Type" nillable="true" minOccurs="0"/>
      </xs:sequence>
      <xs:attribute name="unit" type="unitType" use="optional"/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Complex Type `uCoord3VecIntervalType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | 3-D coordinate interval type with units and frame_id |
| Diagram |  |
| Type | extension of coordIntervalType |
| Type hierarchy | • stcBaseType<br>  • coordIntervalType<br>  • uCoord3VecIntervalType |
| Used by | Element Coord3VecInterval |

| | |
|---|---|
| Model | LoLimit3Vec{0,1} , HiLimit3Vec{0,1} |
| Children | HiLimit3Vec, LoLimit3Vec |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | `Fraction of interval that is occupied by data` | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **ucd** | xs:string | | | optional |
| **unit** | unitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

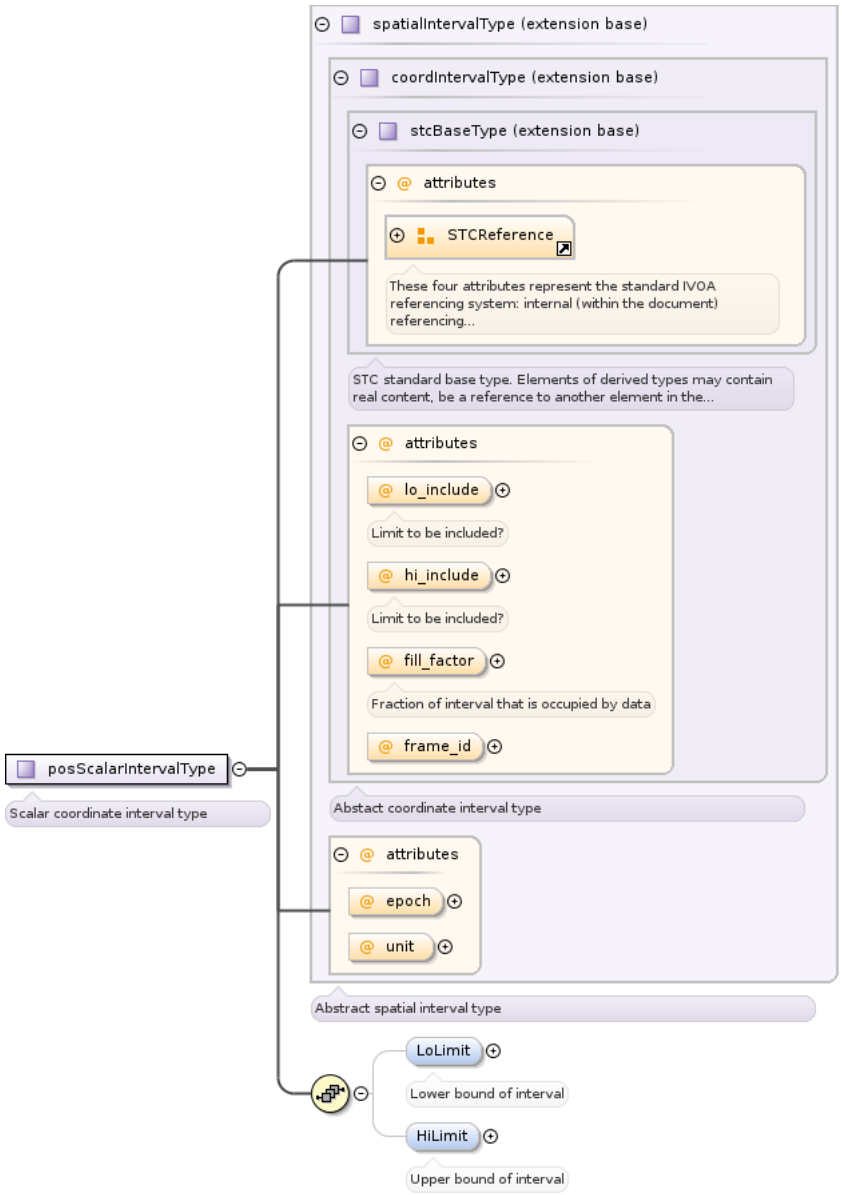
Source

```
<xs:complexType name="uCoord3VecIntervalType">
  <xs:annotation>
    <xs:documentation>3-D coordinate interval type with units and frame_id</
xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="coordIntervalType">
      <xs:sequence>
        <xs:element name="LoLimit3Vec" type="double3Type" nillable="true" minOccurs="0"/>
        <xs:element name="HiLimit3Vec" type="double3Type" nillable="true" minOccurs="0"/>
      </xs:sequence>
      <xs:attribute name="unit" type="unitType" use="optional"/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type `posScalarIntervalType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `Scalar coordinate interval type` |

| | |
|---|---|
| Diagram |  |
| Type | extension of spatialIntervalType |
| Type hierarchy | • stcBaseType<br>• coordIntervalType<br>• spatialIntervalType<br>• posScalarIntervalType |
| Used by | Element PositionScalarInterval |
| Model | LoLimit{0,1} , HiLimit{0,1} |
| Children | HiLimit, LoLimit |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | `Fraction of interval that is occupied by data` | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |

| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | | Limit to be included? | | | |
| | **id** | xs:ID | | | optional |
| | **idref** | xs:IDREF | | | optional |
| | **lo_include** | xs:boolean | | true | optional |
| | | Limit to be included? | | | |
| | **ucd** | xs:string | | | optional |
| | **unit** | posUnitType | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

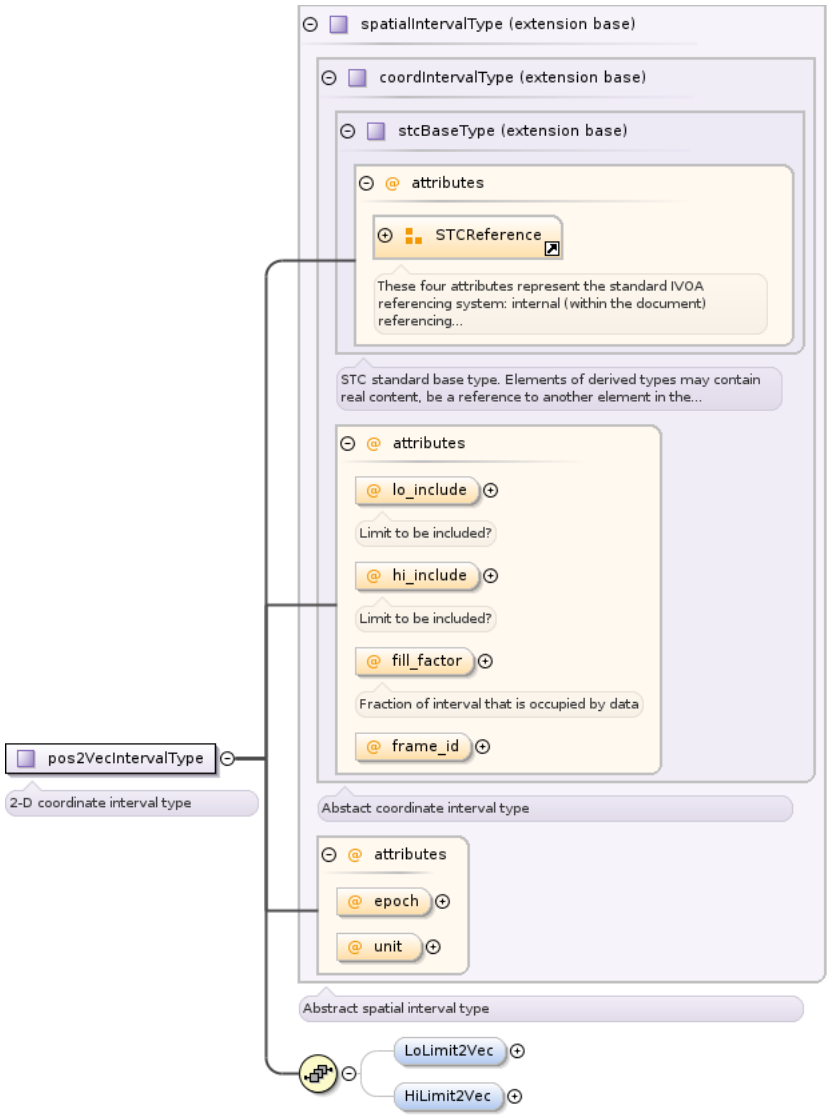
Source

```
<xs:complexType name="posScalarIntervalType">
  <xs:annotation>
    <xs:documentation>Scalar coordinate interval type</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="spatialIntervalType">
      <xs:sequence>
        <xs:element name="LoLimit" type="double1Type" nillable="true" minOccurs="0">
          <xs:annotation>
            <xs:documentation>Lower bound of interval</xs:documentation>
          </xs:annotation>
        </xs:element>
        <xs:element name="HiLimit" type="double1Type" nillable="true" minOccurs="0">
          <xs:annotation>
            <xs:documentation>Upper bound of interval</xs:documentation>
          </xs:annotation>
        </xs:element>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Complex Type `pos2VecIntervalType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | 2-D coordinate interval type |

| | |
|---|---|
| Diagram |  |
| Type | extension of spatialIntervalType |
| Type hierarchy | • stcBaseType<br>• coordIntervalType<br>• spatialIntervalType<br>• pos2VecIntervalType |
| Used by | Element Position2VecInterval |
| Model | LoLimit2Vec{0,1} , HiLimit2Vec{0,1} |
| Children | HiLimit2Vec, LoLimit2Vec |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | `Fraction of interval that is occupied by data` | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **id** | xs:ID | | | optional |

| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **idref** | xs:IDREF | | | optional |
| | **lo_include** | xs:boolean | | true | optional |
| | | `Limit to be included?` | | | |
| | **ucd** | xs:string | | | optional |
| | **unit** | posUnitType | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

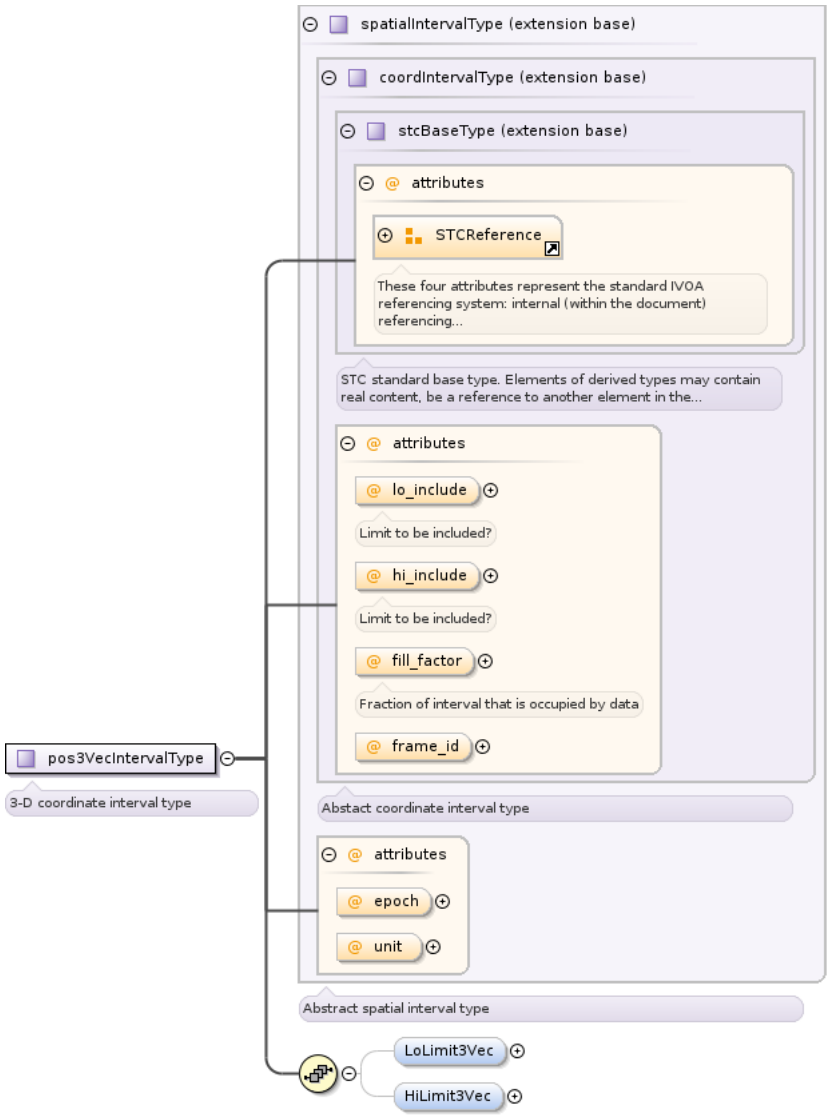
Source

```
<xs:complexType name="pos2VecIntervalType">
  <xs:annotation>
    <xs:documentation>2-D coordinate interval type</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="spatialIntervalType">
      <xs:sequence>
        <xs:element name="LoLimit2Vec" type="double2Type" nillable="true" minOccurs="0"/>
        <xs:element name="HiLimit2Vec" type="double2Type" nillable="true" minOccurs="0"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Complex Type `pos3VecIntervalType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `3-D coordinate interval type` |

| | |
|---|---|
| Diagram |  |
| Type | extension of spatialIntervalType |
| Type hierarchy | • stcBaseType<br>• coordIntervalType<br>• spatialIntervalType<br>• pos3VecIntervalType |
| Used by | Element Position3VecInterval |
| Model | LoLimit3Vec{0,1} , HiLimit3Vec{0,1} |
| Children | HiLimit3Vec, LoLimit3Vec |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | `Fraction of interval that is occupied by data` | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **id** | xs:ID | | | optional |

| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **idref** | xs:IDREF | | | optional |
| | **lo_include** | xs:boolean | | true | optional |
| | | `Limit to be included?` | | | |
| | **ucd** | xs:string | | | optional |
| | **unit** | posUnitType | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

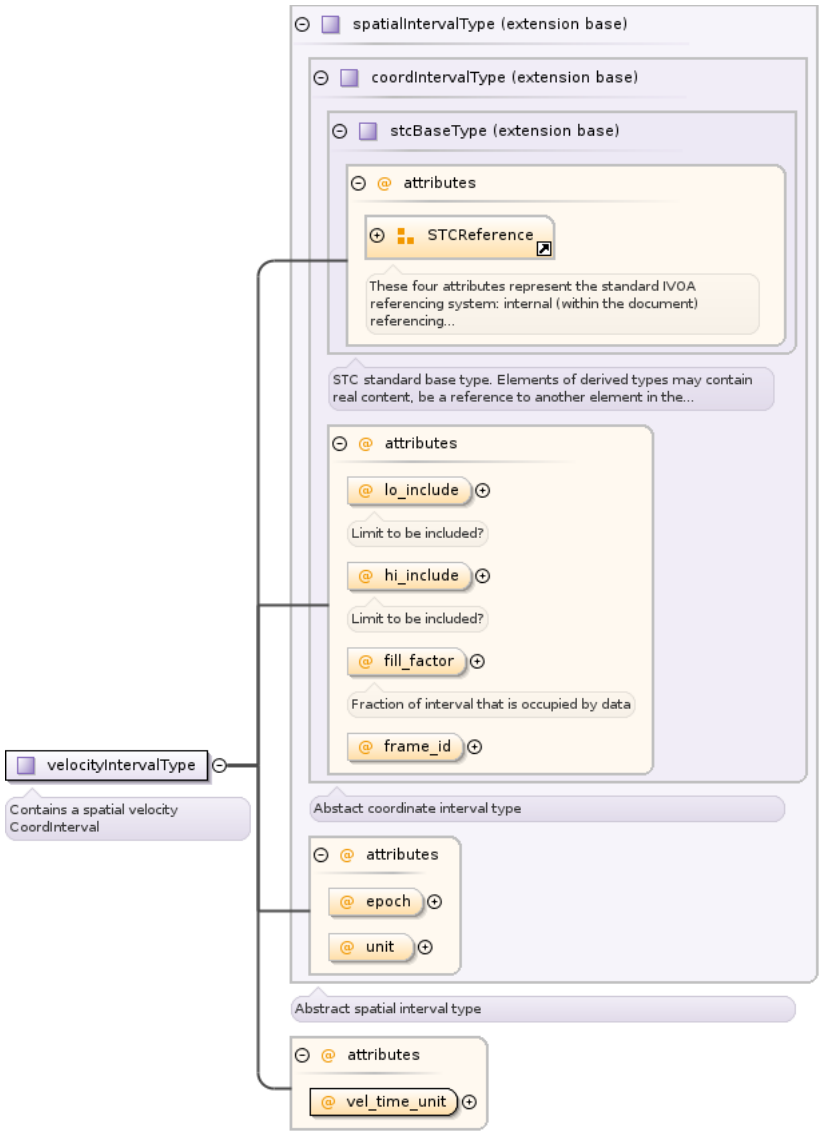
```
<xs:complexType name="pos3VecIntervalType">
  <xs:annotation>
    <xs:documentation>3-D coordinate interval type</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="spatialIntervalType">
      <xs:sequence>
        <xs:element name="LoLimit3Vec" type="double3Type" nillable="true" minOccurs="0"/>
        <xs:element name="HiLimit3Vec" type="double3Type" nillable="true" minOccurs="0"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type `velocityIntervalType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `Contains a spatial velocity CoordInterval` |

Diagram




| | |
|---|---|
| Type | extension of spatialIntervalType |
| Type hierarchy | • stcBaseType<br>• coordIntervalType<br>• spatialIntervalType<br>• velocityIntervalType |
| Properties | abstract: `true` |
| Used by | Complex Types: vel2VecIntervalType, vel3VecIntervalType, velScalarIntervalType, velocitySphereType |

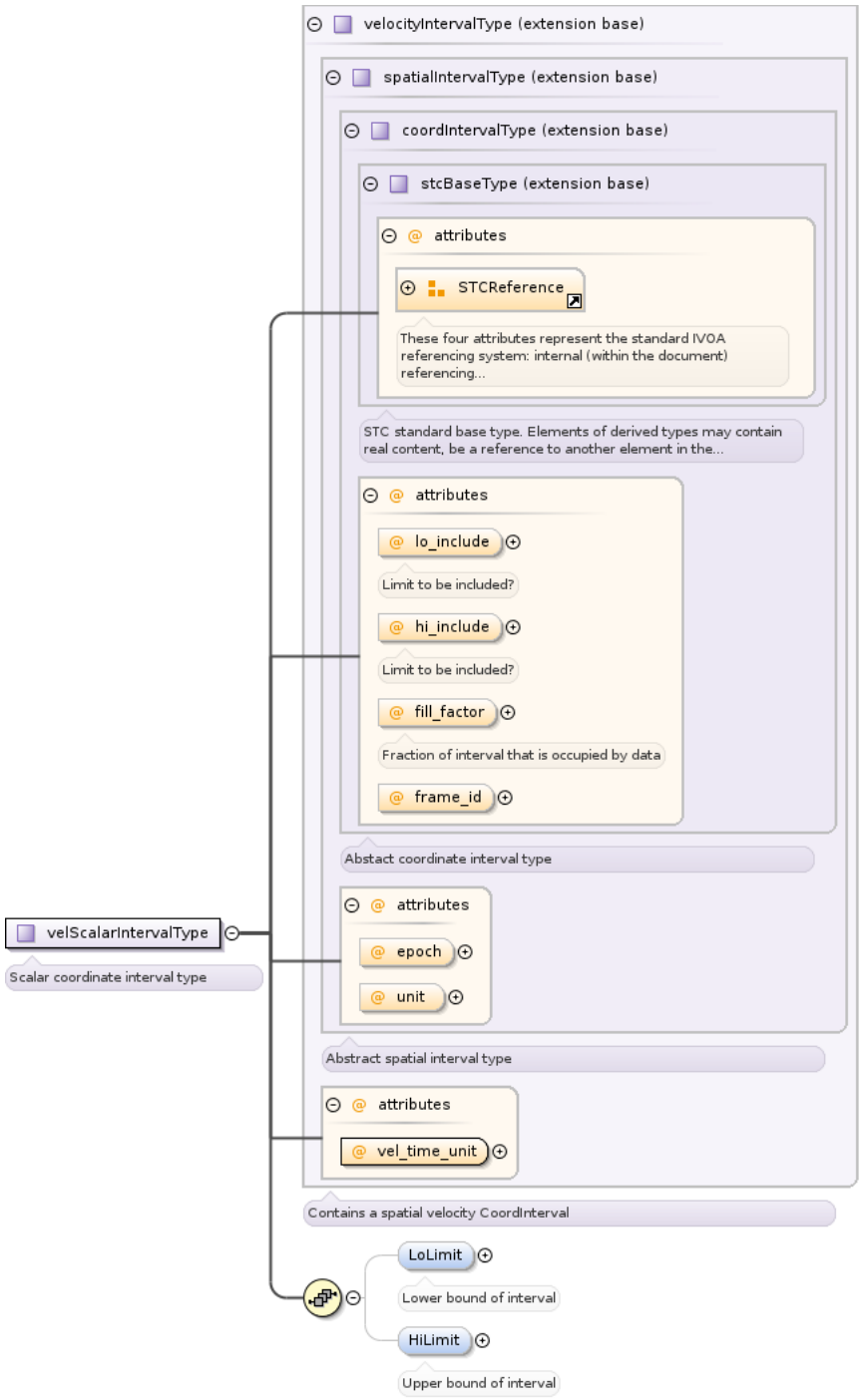
Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | `Fraction of interval that is occupied by data` | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **id** | xs:ID | | | optional |

| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **idref** | xs:IDREF | | | optional |
| | **lo_include** | xs:boolean | | true | optional |
| | | `Limit to be included?` | | | |
| | **ucd** | xs:string | | | optional |
| | **unit** | posUnitType | | | optional |
| | **vel_time_unit** | velTimeUnitType | | | required |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |
| Source | <xs:complexType name="velocityIntervalType" abstract="true"><br><xs:annotation><br><xs:documentation>Contains a spatial velocity CoordInterval</xs:documentation><br></xs:annotation><br><xs:complexContent><br><xs:extension base="spatialIntervalType"><br><xs:attribute name="vel_time_unit" type="velTimeUnitType" use="required"/><br></xs:extension><br></xs:complexContent><br></xs:complexType> | | | | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | | | | |

## Complex Type `velScalarIntervalType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `Scalar coordinate interval type` |

| | |
|---|---|
| Diagram |  |
| Type | extension of velocityIntervalType |
| Type hierarchy | • stcBaseType<br>• coordIntervalType<br>• spatialIntervalType<br>• velocityIntervalType<br>• velScalarIntervalType |
| Used by | Element VelocityScalarInterval |
| Model | LoLimit{0,1} , HiLimit{0,1} |
| Children | HiLimit, LoLimit |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | `Fraction of interval that is occupied by data` | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | required |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

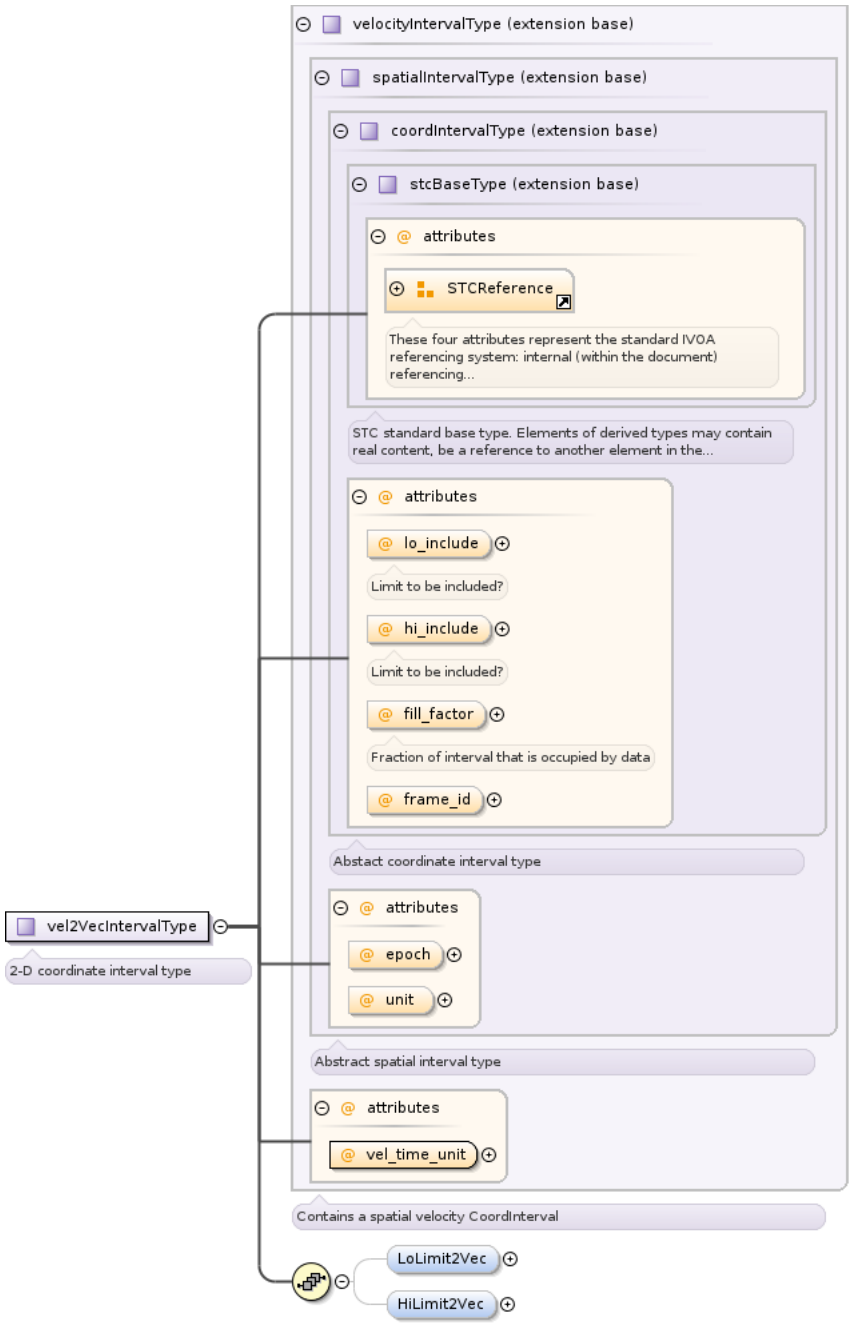
Source

```
<xs:complexType name="velScalarIntervalType">
  <xs:annotation>
    <xs:documentation>Scalar coordinate interval type</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="velocityIntervalType">
      <xs:sequence>
        <xs:element name="LoLimit" type="double1Type" nillable="true" minOccurs="0">
          <xs:annotation>
            <xs:documentation>Lower bound of interval</xs:documentation>
          </xs:annotation>
        </xs:element>
        <xs:element name="HiLimit" type="double1Type" nillable="true" minOccurs="0">
          <xs:annotation>
            <xs:documentation>Upper bound of interval</xs:documentation>
          </xs:annotation>
        </xs:element>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Complex Type `vel2VecIntervalType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `2-D coordinate interval type` |

| | |
|---|---|
| Diagram |  |
| Type | extension of velocityIntervalType |
| Type hierarchy | • stcBaseType<br>• coordIntervalType<br>• spatialIntervalType<br>• velocityIntervalType<br>• vel2VecIntervalType |
| Used by | Element Velocity2VecInterval |
| Model | LoLimit2Vec{0,1} , HiLimit2Vec{0,1} |
| Children | HiLimit2Vec, LoLimit2Vec |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | `Fraction of interval that is occupied by data` | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | required |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

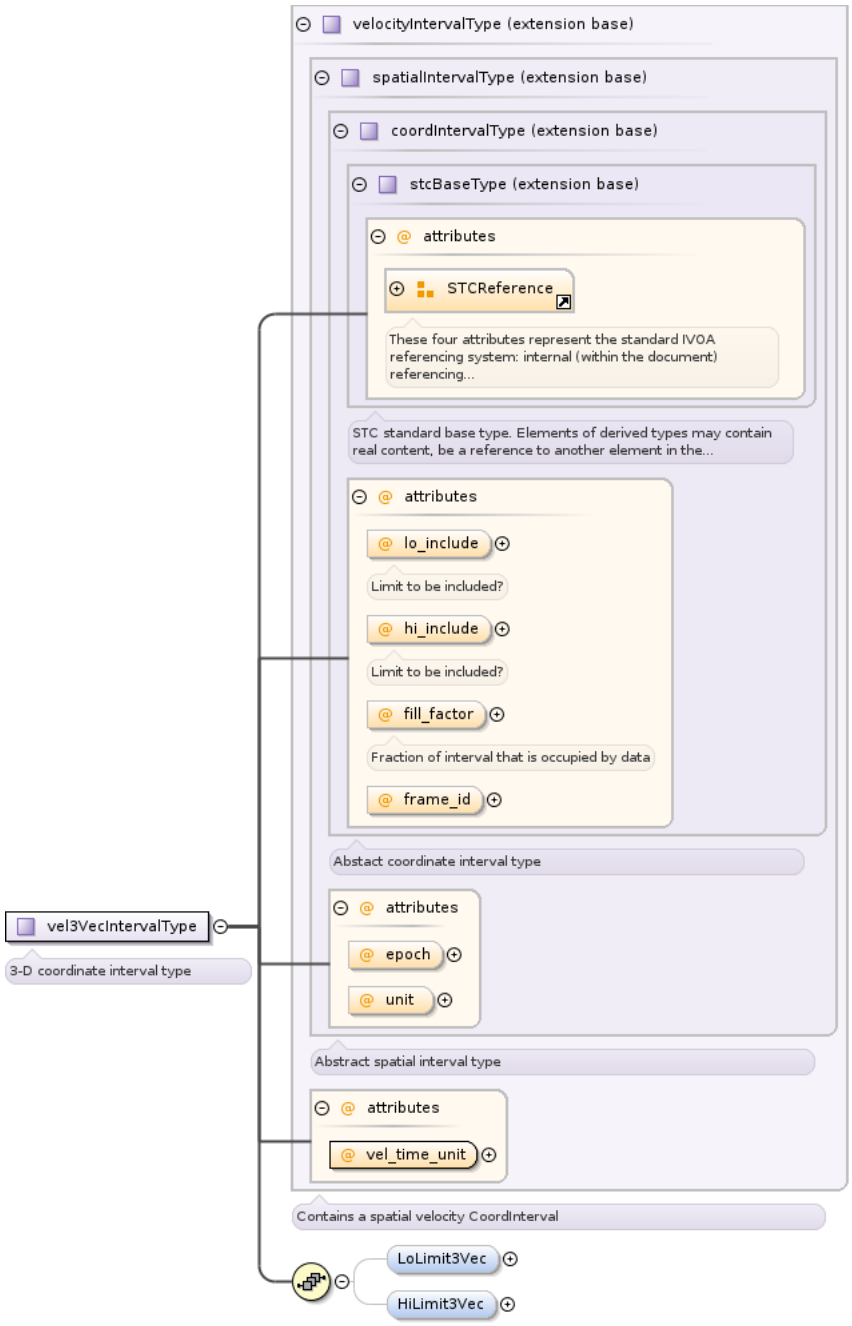
Source

```
<xs:complexType name="vel2VecIntervalType">
  <xs:annotation>
    <xs:documentation>2-D coordinate interval type</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="velocityIntervalType">
      <xs:sequence>
        <xs:element name="LoLimit2Vec" type="double2Type" nillable="true" minOccurs="0"/>
        <xs:element name="HiLimit2Vec" type="double2Type" nillable="true" minOccurs="0"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Complex Type `vel3VecIntervalType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `3-D coordinate interval type` |

| | |
|---|---|
| Diagram |  |
| Type | extension of velocityIntervalType |
| Type hierarchy | • stcBaseType<br>• coordIntervalType<br>• spatialIntervalType<br>• velocityIntervalType<br>• vel3VecIntervalType |
| Used by | Element Velocity3VecInterval |
| Model | LoLimit3Vec{0,1} , HiLimit3Vec{0,1} |
| Children | HiLimit3Vec, LoLimit3Vec |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | Fraction of interval that is occupied by data | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | required |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

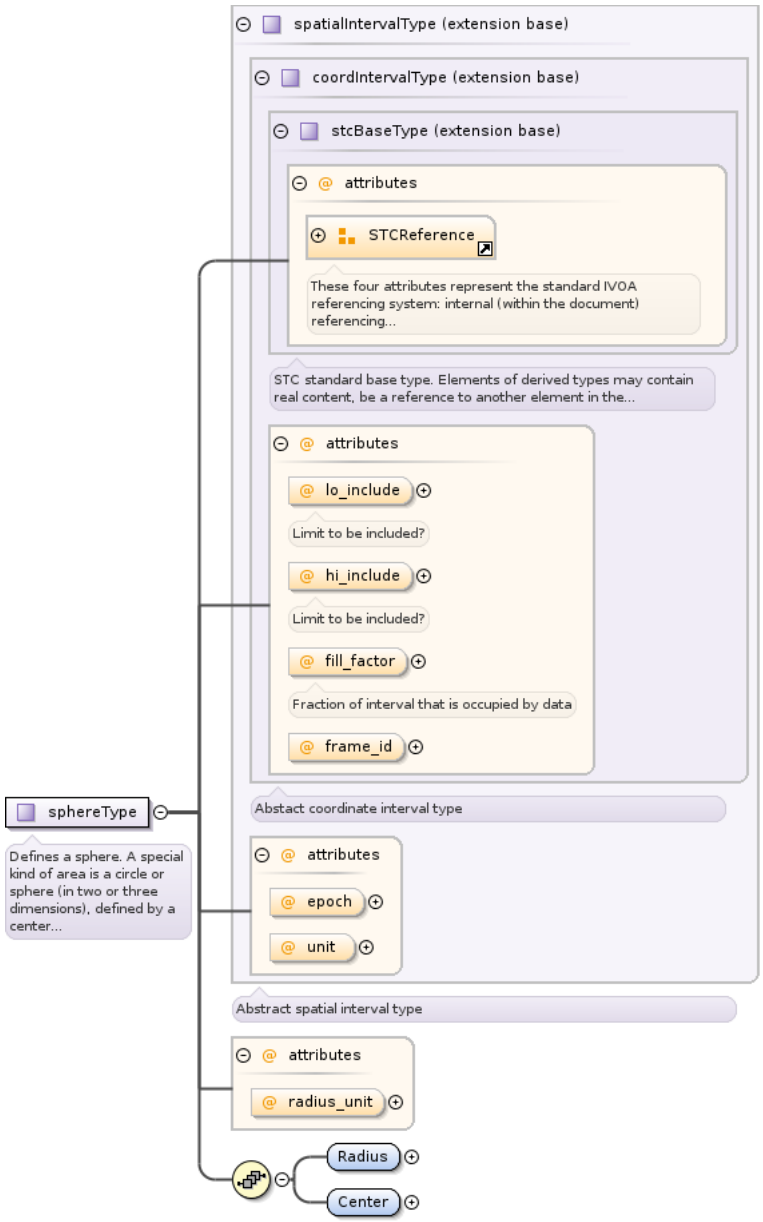
Source

```
<xs:complexType name="vel3VecIntervalType">
  <xs:annotation>
    <xs:documentation>3-D coordinate interval type</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="velocityIntervalType">
      <xs:sequence>
        <xs:element name="LoLimit3Vec" type="double3Type" nillable="true" minOccurs="0"/>
        <xs:element name="HiLimit3Vec" type="double3Type" nillable="true" minOccurs="0"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Complex Type sphereType

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Defines a sphere. A special kind of area is a circle or sphere (in two or three dimensions), defined by a center position and a radius; the radius requires a unit |

| | |
|---|---|
| Diagram |  |
| Type | extension of spatialIntervalType |
| Type hierarchy | • stcBaseType<br>• coordIntervalType<br>• spatialIntervalType<br>• sphereType |
| Used by | Element Sphere |
| Model | Radius , Center |
| Children | Center, Radius |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | `Fraction of interval that is occupied by data` | | | |
| **frame_id** | xs:IDREF | | | optional |

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **hi_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | Limit to be included? | | | |
| **radius_unit** | posUnitType | | deg | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

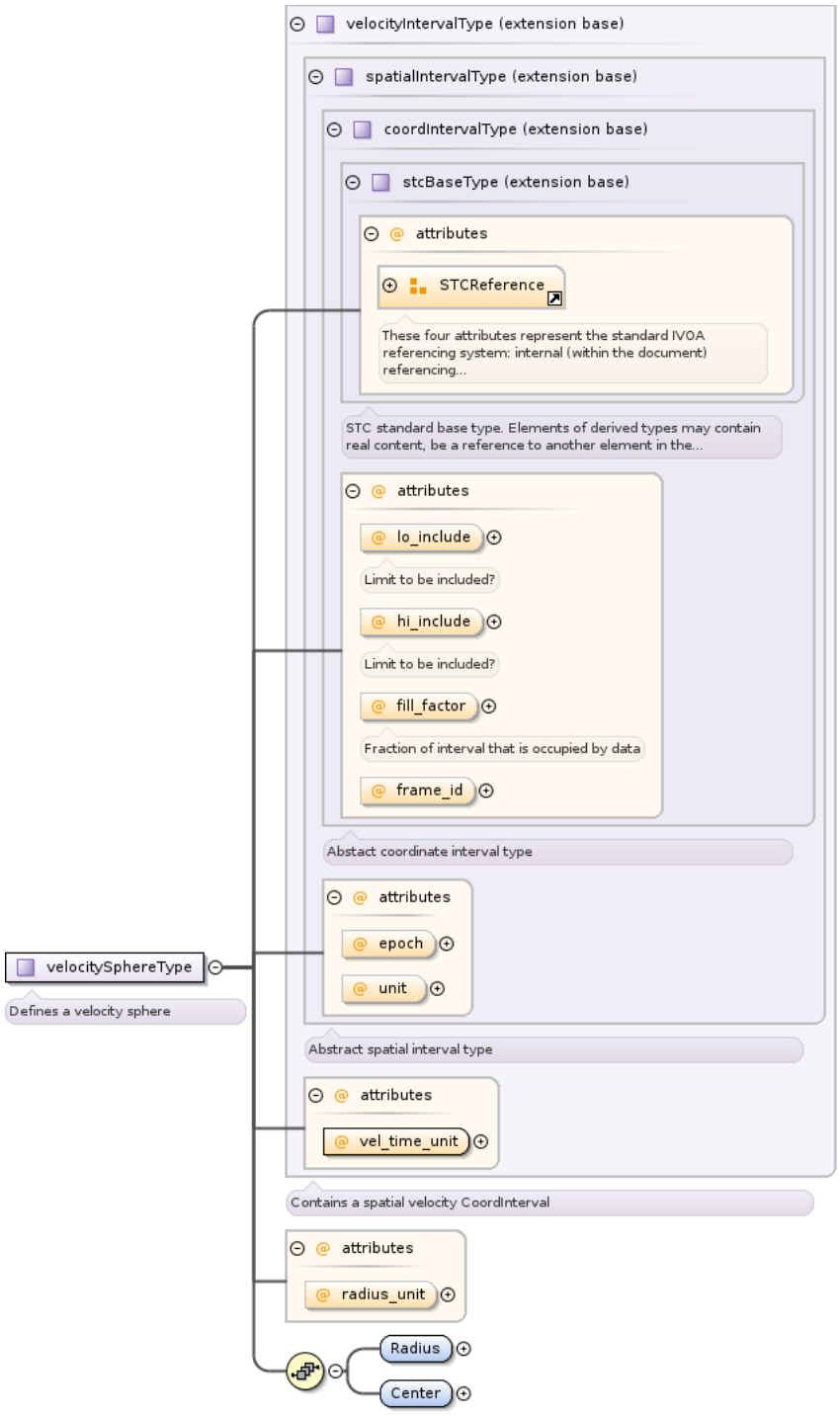
Source

```
<xs:complexType name="sphereType">
  <xs:annotation>
    <xs:documentation>Defines a sphere. A special kind of area is a circle or sphere (in
 two or three dimensions), defined by a center position and a radius; the radius requires
 a unit</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="spatialIntervalType">
      <xs:sequence>
        <xs:element name="Radius" type="double1Type" nillable="true"/>
        <xs:element name="Center" type="double3Type" nillable="true"/>
      </xs:sequence>
      <xs:attribute name="radius_unit" type="posUnitType" use="optional" default="deg"/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Complex Type `velocitySphereType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Defines a velocity sphere |

| | |
|---|---|
| Diagram |  |
| Type | extension of velocityIntervalType |
| Type hierarchy | • stcBaseType<br>• coordIntervalType<br>• spatialIntervalType<br>• velocityIntervalType<br>• velocitySphereType |
| Used by | Element VelocitySphere |
| Model | Radius , Center |
| Children | Center, Radius |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | `Fraction of interval that is occupied by data` | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **lo_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **radius_unit** | posUnitType | | deg | optional |
| **ucd** | xs:string | | | optional |
| **unit** | posUnitType | | | optional |
| **vel_time_unit** | velTimeUnitType | | | required |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

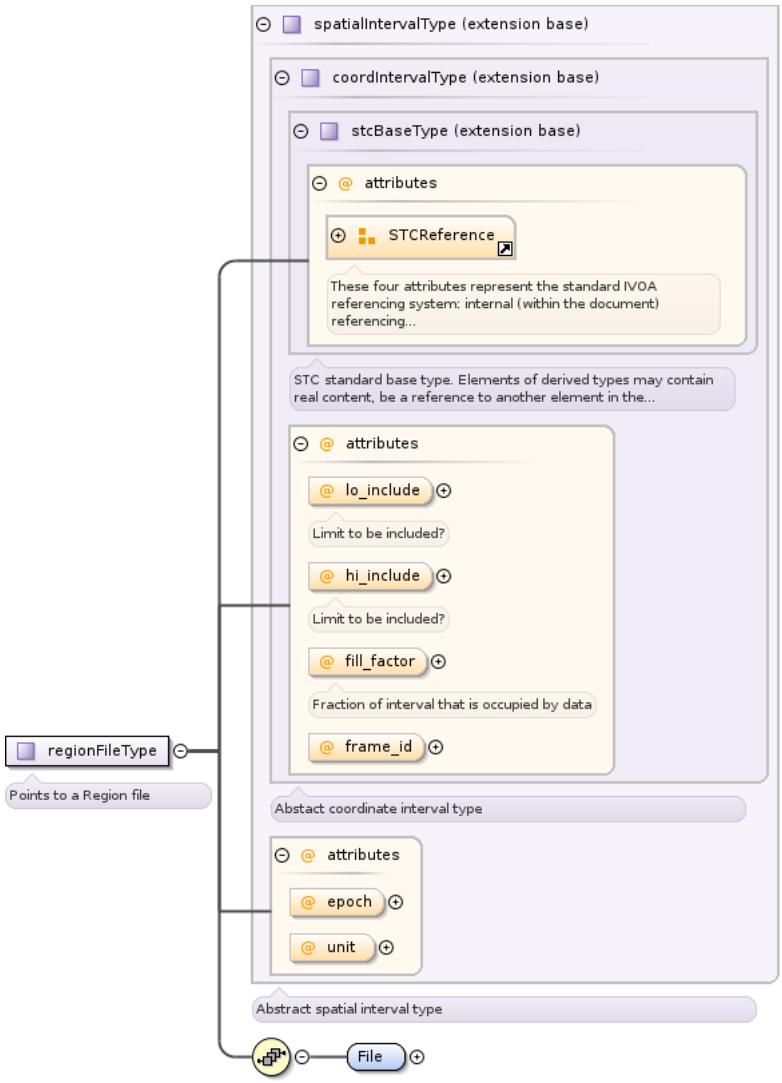
```
<xs:complexType name="velocitySphereType">
  <xs:annotation>
    <xs:documentation>Defines a velocity sphere</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="velocityIntervalType">
      <xs:annotation>
        <xs:documentation>A special kind of area is a circle or sphere (in two or three
 dimensions), defined by a center position and a radius; the radius requires a unit</
xs:documentation>
      </xs:annotation>
      <xs:sequence>
        <xs:element name="Radius" type="double1Type" nillable="true"/>
        <xs:element name="Center" type="double3Type" nillable="true"/>
      </xs:sequence>
      <xs:attribute name="radius_unit" type="posUnitType" use="optional" default="deg"/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Complex Type `regionFileType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `Points to a Region file` |

Diagram




Type: extension of spatialIntervalType

Type hierarchy:

- stcBaseType
  - coordIntervalType
    - spatialIntervalType
      - regionFileType

Used by: Element RegionFile

Model: File

Children: File

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **epoch** | xs:decimal | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | `Fraction of interval that is occupied by data` | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |

| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **lo_include** | xs:boolean | | true | optional |
| | | Limit to be included? | | | |
| | **ucd** | xs:string | | | optional |
| | **unit** | posUnitType | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

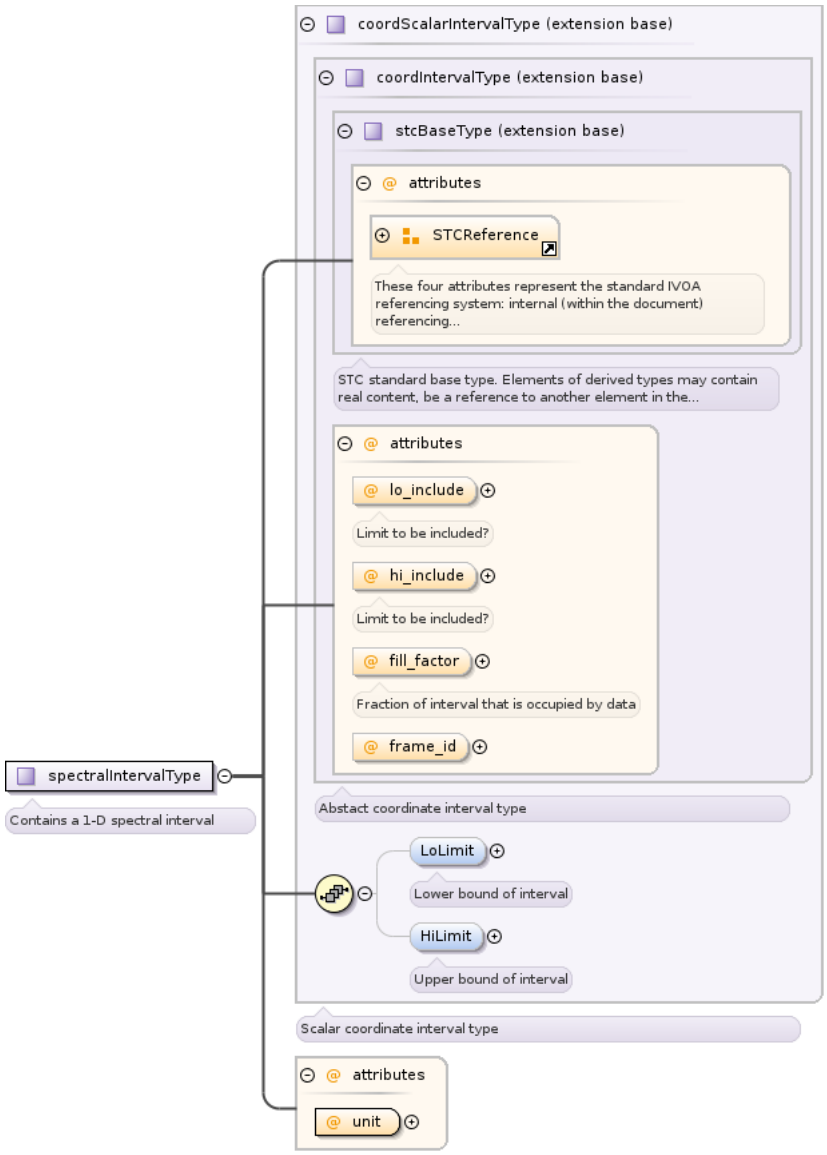
Source

```
<xs:complexType name="regionFileType">
  <xs:annotation>
    <xs:documentation>Points to a Region file</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="spatialIntervalType">
      <xs:sequence>
        <xs:element name="File" type="xs:anyURI"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type `spectralIntervalType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Contains a 1-D spectral interval |

| | |
|---|---|
| Diagram |  |
| Type | extension of coordScalarIntervalType |
| Type hierarchy | • stcBaseType<br>• coordIntervalType<br>• coordScalarIntervalType<br>• spectralIntervalType |
| Used by | Element astroCoordAreaType/SpectralInterval |
| Model | LoLimit{0,1} , HiLimit{0,1} |
| Children | HiLimit, LoLimit |

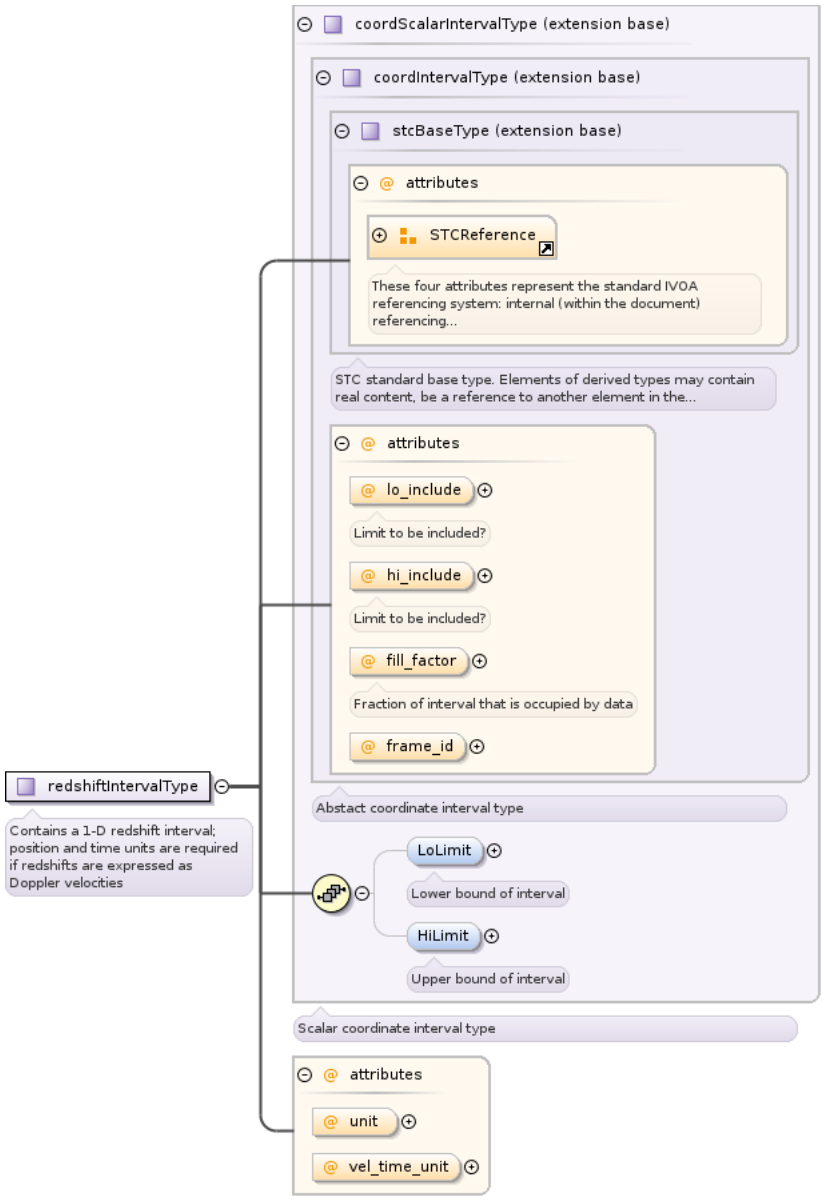
Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | `Fraction of interval that is occupied by data` | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |
| **id** | xs:ID | | | optional |

| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **idref** | xs:IDREF | | | optional |
| | **lo_include** | xs:boolean | | true | optional |
| | | `Limit to be included?` | | | |
| | **ucd** | xs:string | | | optional |
| | **unit** | spectralUnitType | | | required |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |
| Source | <xs:complexType name="spectralIntervalType"><br><xs:annotation><br><xs:documentation>Contains a 1-D spectral interval</xs:documentation><br></xs:annotation><br><xs:complexContent><br><xs:extension base="coordScalarIntervalType"><br><xs:attribute name="unit" type="spectralUnitType" use="required"/><br></xs:extension><br></xs:complexContent><br></xs:complexType> | | | | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | | | | |

## Complex Type `redshiftIntervalType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `Contains a 1-D redshift interval; position and time units are required if redshifts are expressed as Doppler velocities` |

| | |
|---|---|
| Diagram |  |
| Type | extension of coordScalarIntervalType |
| Type hierarchy | • stcBaseType<br>• coordIntervalType<br>• coordScalarIntervalType<br>• redshiftIntervalType |
| Used by | Element astroCoordAreaType/RedshiftInterval |
| Model | LoLimit{0,1} , HiLimit{0,1} |
| Children | HiLimit, LoLimit |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **fill_factor** | xs:float | | 1.0 | optional |
| | `Fraction of interval that is occupied by data` | | | |
| **frame_id** | xs:IDREF | | | optional |
| **hi_include** | xs:boolean | | true | optional |
| | `Limit to be included?` | | | |

| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **id** | xs:ID | | | optional |
| | **idref** | xs:IDREF | | | optional |
| | **lo_include** | xs:boolean | | true | optional |
| | | `Limit to be included?` | | | |
| | **ucd** | xs:string | | | optional |
| | **unit** | posUnitType | | | optional |
| | **vel_time_unit** | velTimeUnitType | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

`Source`

```
<xs:complexType name="redshiftIntervalType">
  <xs:annotation>
    <xs:documentation>Contains a 1-D redshift interval; position and time units are
 required if redshifts are expressed as Doppler velocities</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="coordScalarIntervalType">
      <xs:attribute name="unit" type="posUnitType" use="optional"/>
      <xs:attribute name="vel_time_unit" type="velTimeUnitType" use="optional"/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

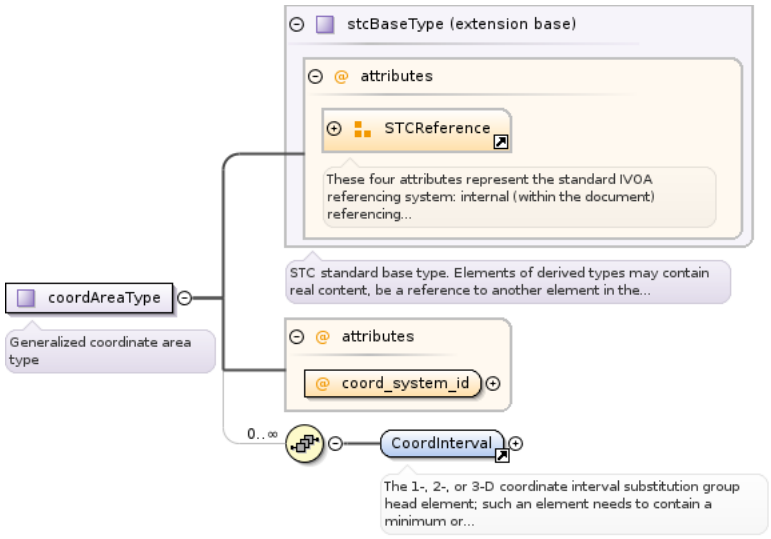
Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Complex Type `coordAreaType`

Namespace: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

Annotations: `Generalized coordinate area type`

Diagram




Type: extension of stcBaseType

Type hierarchy:

- stcBaseType
  - coordAreaType

Used by

| | |
|---|---|
| Complex Types | astroCoordAreaType, pixelCoordAreaType |
| Element | CoordArea |

Model: CoordInterval

Children: CoordInterval

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | required |

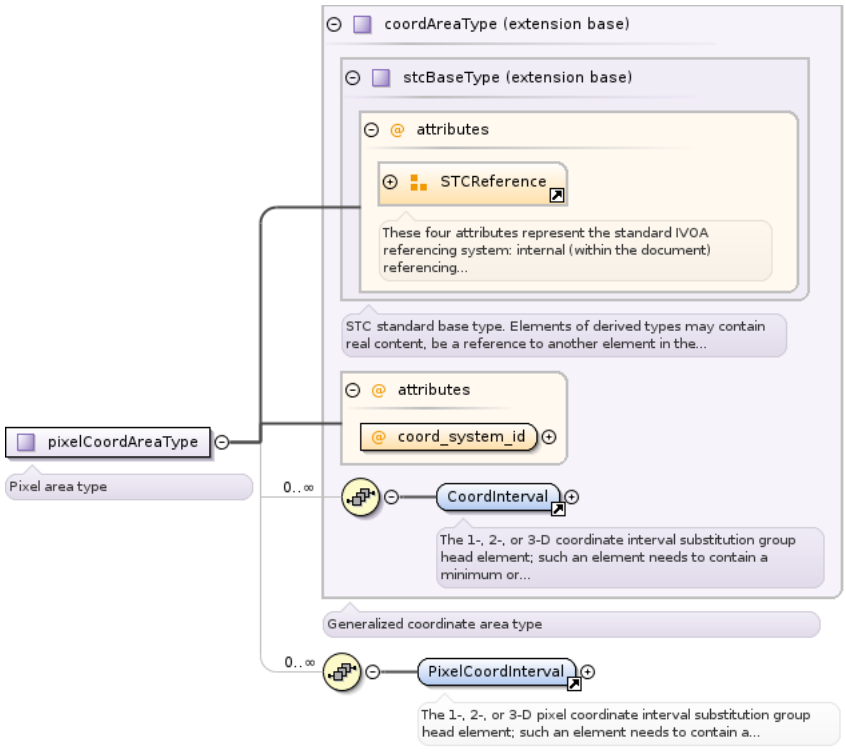
| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **id** | xs:ID | | | optional |
| | **idref** | xs:IDREF | | | optional |
| | **ucd** | xs:string | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:complexType name="coordAreaType">
  <xs:annotation>
    <xs:documentation>Generalized coordinate area type</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="stcBaseType">
      <xs:sequence minOccurs="0" maxOccurs="unbounded">
        <xs:element ref="CoordInterval"/>
      </xs:sequence>
      <xs:attribute name="coord_system_id" type="xs:IDREF" use="required"/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Complex Type `pixelCoordAreaType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Pixel area type |
| Diagram |  |
| Type | extension of coordAreaType |
| Type hierarchy | • stcBaseType<br>  • coordAreaType<br>  • pixelCoordAreaType |
| Used by | Element PixelCoordArea |
| Model | CoordInterval , PixelCoordInterval |
| Children | CoordInterval, PixelCoordInterval |

| | | | | | |
|---|---|---|---|---|---|
| Attributes | **QName** | **Type** | **Fixed** | **Default** | **Use** |
| | **IDREF_type** | xs:string | | | optional |
| | **ID_type** | xs:string | | | optional |
| | **coord_system_id** | xs:IDREF | | | required |
| | **id** | xs:ID | | | optional |
| | **idref** | xs:IDREF | | | optional |
| | **ucd** | xs:string | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

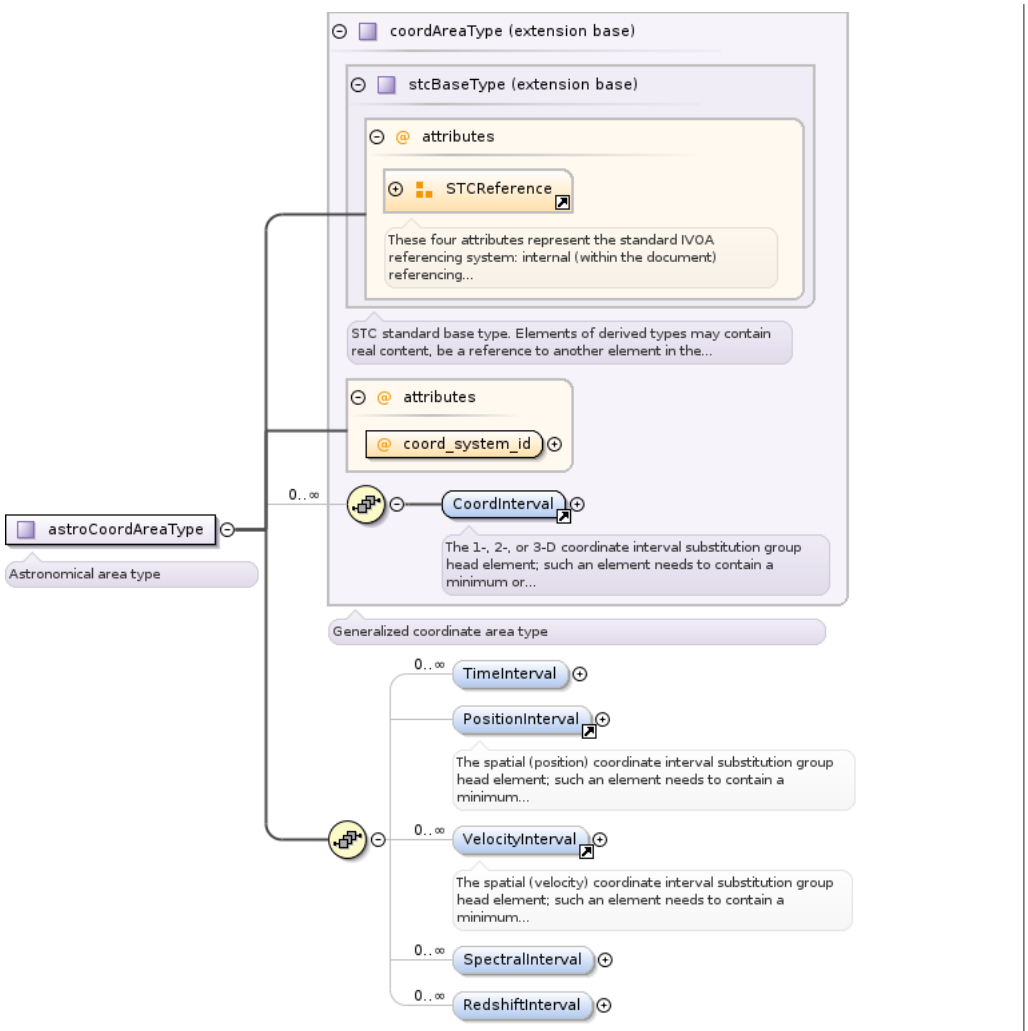
Source

```
<xs:complexType name="pixelCoordAreaType">
  <xs:annotation>
    <xs:documentation>Pixel area type</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="coordAreaType">
      <xs:sequence minOccurs="0" maxOccurs="unbounded">
        <xs:element ref="PixelCoordInterval"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Complex Type `astroCoordAreaType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Astronomical area type |

| | |
|---|---|
| Diagram |  |
| Type | extension of coordAreaType |
| Type hierarchy | • stcBaseType<br>  • coordAreaType<br>  • astroCoordAreaType |
| Used by | Element AstroCoordArea |
| Model | CoordInterval , TimeInterval* , PositionInterval{0,1} , VelocityInterval* , SpectralInterval* , RedshiftInterval* |
| Children | CoordInterval, PositionInterval, RedshiftInterval, SpectralInterval, TimeInterval, VelocityInterval |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **coord_system_id** | xs:IDREF | | | required |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

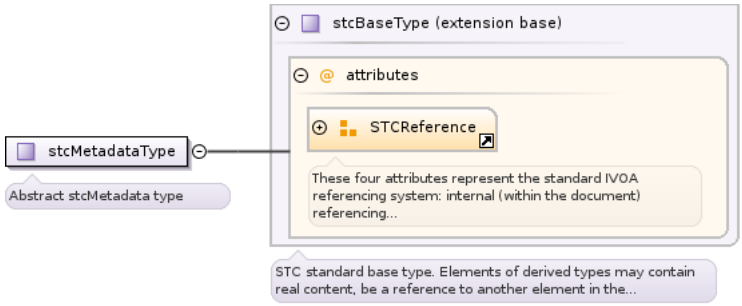
Source

```
<xs:complexType name="astroCoordAreaType">
  <xs:annotation>
    <xs:documentation>Astronomical area type</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="coordAreaType">
```

```
      <xs:sequence>
        <xs:element name="TimeInterval" type="timeIntervalType" nillable="true"
 minOccurs="0" maxOccurs="unbounded"/>
        <xs:element ref="PositionInterval" minOccurs="0"/>
        <xs:element ref="VelocityInterval" minOccurs="0" maxOccurs="unbounded"/>
        <xs:element name="SpectralInterval" type="spectralIntervalType" nillable="true"
 minOccurs="0" maxOccurs="unbounded"/>
        <xs:element name="RedshiftInterval" type="redshiftIntervalType" nillable="true"
 minOccurs="0" maxOccurs="unbounded"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type `stcMetadataType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `Abstract stcMetadata type` |
| Diagram |  |
| Type | extension of stcBaseType |
| Type hierarchy | • stcBaseType<br>  • stcMetadataType |
| Used by | Complex Types: STCCoordinate, STCCoordinateList, STCRegion, STCRegionList, obsDataLocationType, stcDescriptionType<br>Element: STCmetadata |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

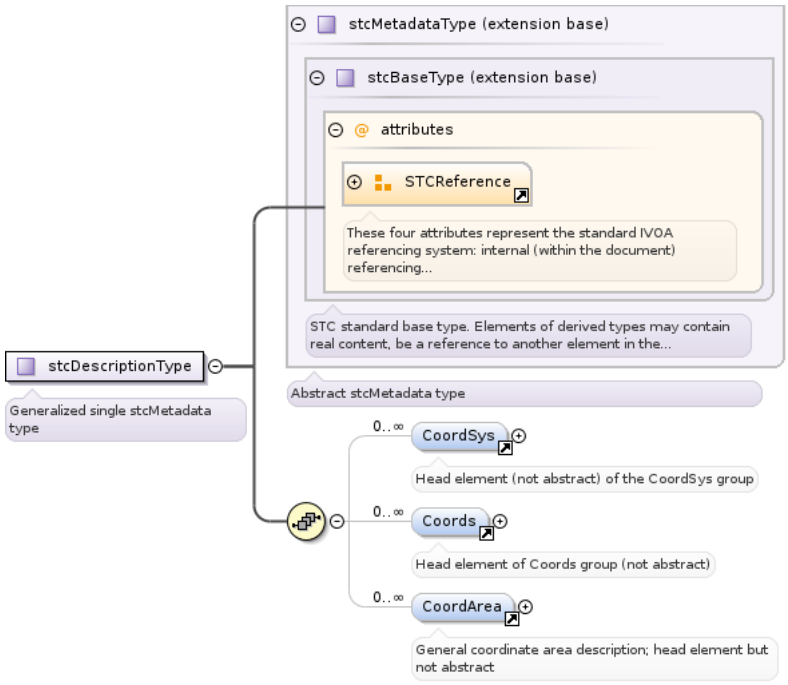
Source

```
<xs:complexType name="stcMetadataType">
  <xs:annotation>
    <xs:documentation>Abstract stcMetadata type</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="stcBaseType"/>
  </xs:complexContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type `stcDescriptionType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `Generalized single stcMetadata type` |

| | |
|---|---|
| Diagram |  |
| Type | extension of stcMetadataType |
| Type hierarchy | • stcBaseType<br>• stcMetadataType<br>• stcDescriptionType |
| Used by | Complex Types astroSTCDescriptionType, observatoryLocationType, pixelSpaceType |
| Model | CoordSys* , Coords* , CoordArea* |
| Children | CoordArea, CoordSys, Coords |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

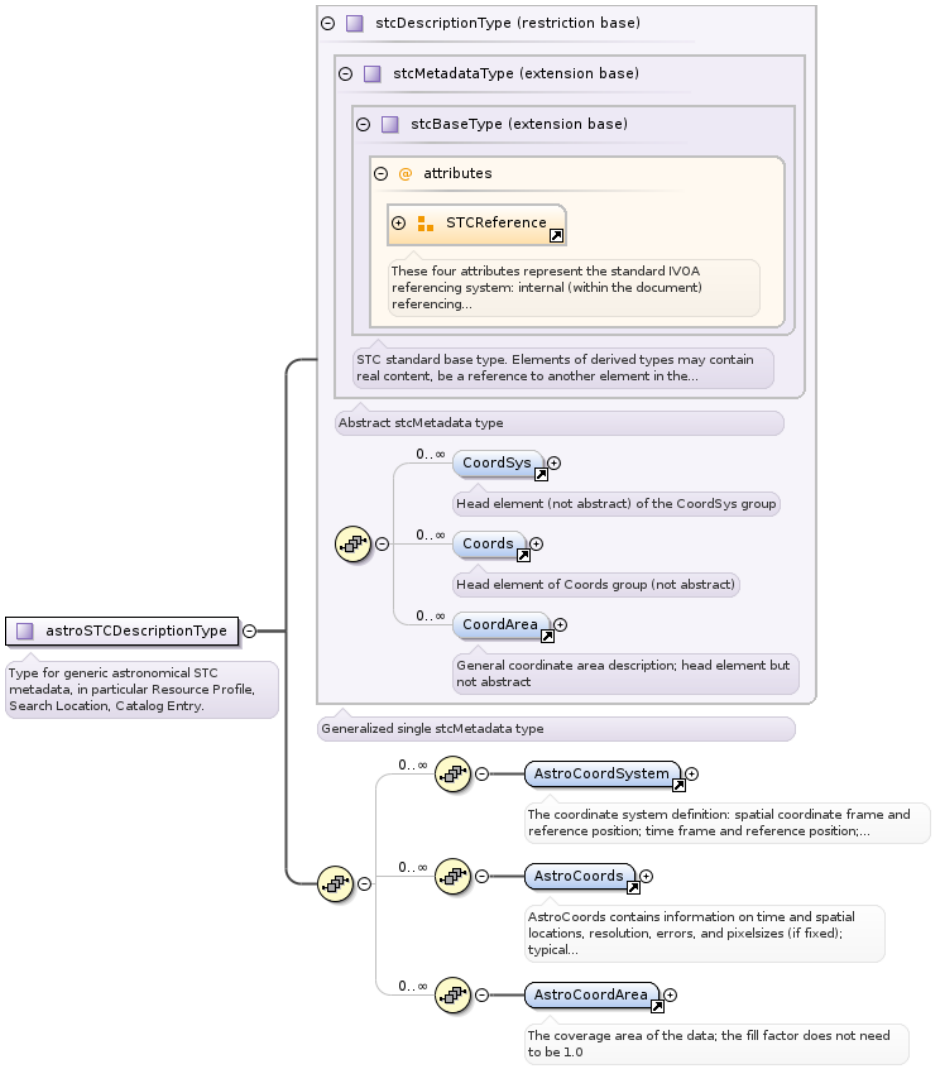
```
<xs:complexType name="stcDescriptionType">
  <xs:annotation>
    <xs:documentation>Generalized single stcMetadata type</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="stcMetadataType">
      <xs:sequence>
        <xs:element ref="CoordSys" minOccurs="0" maxOccurs="unbounded"/>
        <xs:element ref="Coords" minOccurs="0" maxOccurs="unbounded"/>
        <xs:element ref="CoordArea" minOccurs="0" maxOccurs="unbounded"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type `astroSTCDescriptionType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Type for generic astronomical STC metadata, in particular Resource Profile, Search Location, Catalog Entry. |

Diagram




Type

restriction of stcDescriptionType

Type hierarchy

- stcBaseType
  - stcMetadataType
    - stcDescriptionType
      - astroSTCDescriptionType

Used by

Elements: CatalogEntryLocation, STCDescription, STCResourceProfile, SearchLocation, obsDataLocationType/ObservationLocation

Model

AstroCoordSystem , AstroCoords , AstroCoordArea

Children

AstroCoordArea, AstroCoordSystem, AstroCoords

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

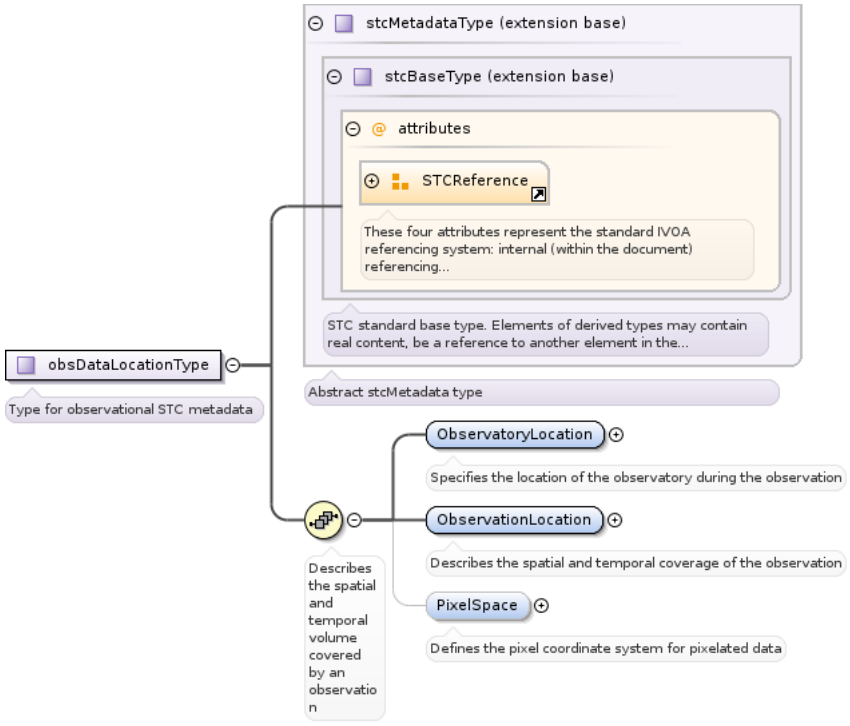
Source

```
<xs:complexType name="astroSTCDescriptionType">
  <xs:annotation>
```

```
   <xs:documentation>Type for generic astronomical STC metadata, in particular Resource
Profile, Search Location, Catalog Entry.</xs:documentation>
 </xs:annotation>
 <xs:complexContent>
   <xs:restriction base="stcDescriptionType">
     <xs:sequence>
       <xs:sequence minOccurs="0" maxOccurs="unbounded">
         <xs:element ref="AstroCoordSystem">
           <xs:annotation>
             <xs:documentation>The coordinate system definition: spatial coordinate frame
and reference position; time frame and reference position; the coordinate flavor; and
the planetary ephemeris; an ID is required, since this is how coordinate elements are
associated with their coordinate systems</xs:documentation>
           </xs:annotation>
         </xs:element>
       </xs:sequence>
       <xs:sequence minOccurs="0" maxOccurs="unbounded">
         <xs:element ref="AstroCoords">
           <xs:annotation>
             <xs:documentation>AstroCoords contains information on time and spatial
locations, resolution, errors, and pixelsizes (if fixed); typical best numbers are
expected</xs:documentation>
           </xs:annotation>
         </xs:element>
       </xs:sequence>
       <xs:sequence minOccurs="0" maxOccurs="unbounded">
         <xs:element ref="AstroCoordArea">
           <xs:annotation>
             <xs:documentation>The coverage area of the data; the fill factor does not
need to be 1.0</xs:documentation>
           </xs:annotation>
         </xs:element>
       </xs:sequence>
     </xs:sequence>
   </xs:restriction>
 </xs:complexContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type `obsDataLocationType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Type for observational STC metadata |
| Diagram |  |
| Type | extension of stcMetadataType |
| Type hierarchy | • stcBaseType |

| | |
|---|---|
| | • stcMetadataType<br>• obsDataLocationType |
| Used by | Element ObsDataLocation |
| Model | ObservatoryLocation , ObservationLocation , PixelSpace{0,1} |
| Children | ObservationLocation, ObservatoryLocation, PixelSpace |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

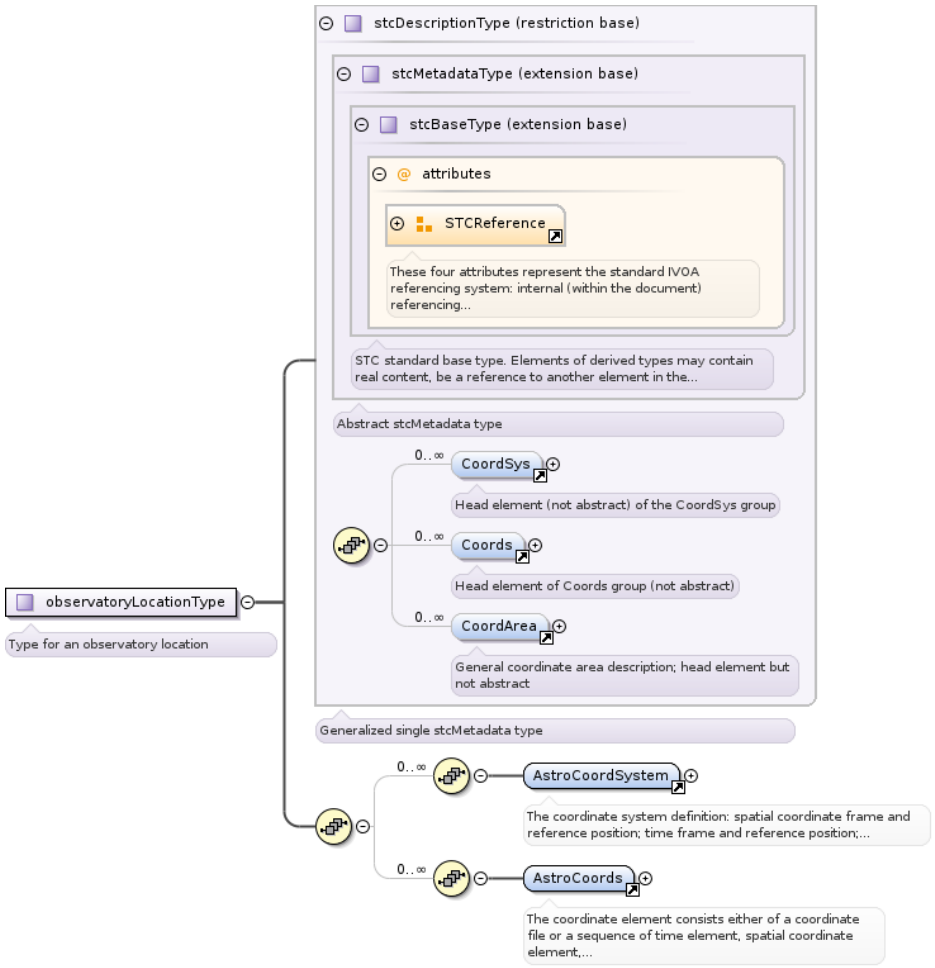
Source

```
<xs:complexType name="obsDataLocationType">
  <xs:annotation>
    <xs:documentation>Type for observational STC metadata</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="stcMetadataType">
      <xs:sequence>
        <xs:annotation>
          <xs:documentation>Describes the spatial and temporal volume covered by an
 observation</xs:documentation>
        </xs:annotation>
        <xs:element name="ObservatoryLocation" type="observatoryLocationType"
 nillable="true">
          <xs:annotation>
            <xs:documentation>Specifies the location of the observatory during the
 observation</xs:documentation>
          </xs:annotation>
        </xs:element>
        <xs:element name="ObservationLocation" type="astroSTCDescriptionType"
 nillable="true">
          <xs:annotation>
            <xs:documentation>Describes the spatial and temporal coverage of the
 observation</xs:documentation>
          </xs:annotation>
        </xs:element>
        <xs:element name="PixelSpace" type="pixelSpaceType" nillable="true" minOccurs="0">
          <xs:annotation>
            <xs:documentation>Defines the pixel coordinate system for pixelated data</
xs:documentation>
          </xs:annotation>
        </xs:element>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type `observatoryLocationType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Type for an observatory location |

| | |
|---|---|
| Diagram |  |
| Type | restriction of stcDescriptionType |
| Type hierarchy | • stcBaseType<br>  • stcMetadataType<br>  • stcDescriptionType<br>  • observatoryLocationType |
| Used by | Element obsDataLocationType/ObservatoryLocation |
| Model | AstroCoordSystem , AstroCoords |
| Children | AstroCoordSystem, AstroCoords |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

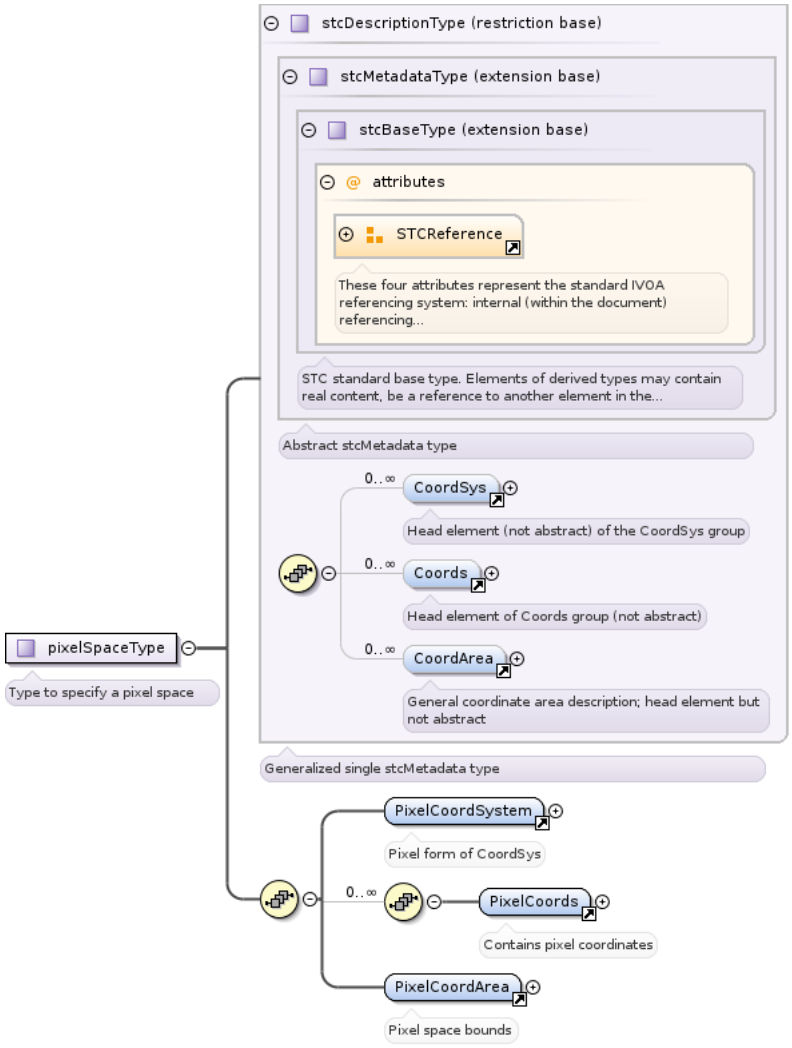
Source

```
<xs:complexType name="observatoryLocationType">
  <xs:annotation>
    <xs:documentation>Type for an observatory location</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:restriction base="stcDescriptionType">
      <xs:sequence>
        <xs:sequence minOccurs="0" maxOccurs="unbounded">
```

```
          <xs:element ref="AstroCoordSystem"/>
        </xs:sequence>
        <xs:sequence minOccurs="0" maxOccurs="unbounded">
          <xs:element ref="AstroCoords"/>
        </xs:sequence>
      </xs:sequence>
    </xs:restriction>
  </xs:complexContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Complex Type `pixelSpaceType`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | `Type to specify a pixel space` |
| Diagram |  |
| Type | restriction of stcDescriptionType |
| Type hierarchy | • stcBaseType<br>• stcMetadataType<br>• stcDescriptionType<br>• pixelSpaceType |
| Used by | Element obsDataLocationType/PixelSpace |
| Model | PixelCoordSystem , PixelCoords , PixelCoordArea |
| Children | PixelCoordArea, PixelCoordSystem, PixelCoords |

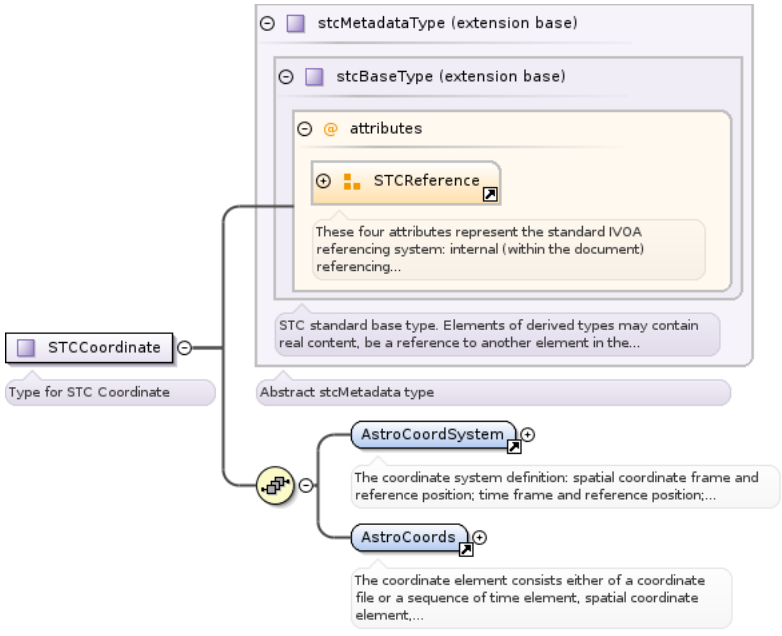
| | | | | | |
|---|---|---|---|---|---|
| Attributes | **QName** | **Type** | **Fixed** | **Default** | **Use** |
| | **IDREF_type** | xs:string | | | optional |
| | **ID_type** | xs:string | | | optional |
| | **id** | xs:ID | | | optional |
| | **idref** | xs:IDREF | | | optional |
| | **ucd** | xs:string | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:complexType name="pixelSpaceType">
  <xs:annotation>
    <xs:documentation>Type to specify a pixel space</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:restriction base="stcDescriptionType">
      <xs:sequence>
        <xs:element ref="PixelCoordSystem"/>
        <xs:sequence minOccurs="0" maxOccurs="unbounded">
          <xs:element ref="PixelCoords"/>
        </xs:sequence>
        <xs:element ref="PixelCoordArea"/>
      </xs:sequence>
    </xs:restriction>
  </xs:complexContent>
</xs:complexType>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Complex Type `STCCoordinate`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Type for STC Coordinate |
| Diagram |  |



| | |
|---|---|
| Type | extension of stcMetadataType |
| Type hierarchy | • stcBaseType<br>  • stcMetadataType<br>  • STCCoordinate |
| Model | AstroCoordSystem , AstroCoords |
| Children | AstroCoordSystem, AstroCoords |

| | | | | | |
|---|---|---|---|---|---|
| Attributes | **QName** | **Type** | **Fixed** | **Default** | **Use** |
| | **IDREF_type** | xs:string | | | optional |

| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **ID_type** | xs:string | | | optional |
| | **id** | xs:ID | | | optional |
| | **idref** | xs:IDREF | | | optional |
| | **ucd** | xs:string | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:complexType name="STCCoordinate">
  <xs:annotation>
    <xs:documentation>Type for STC Coordinate</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="stcMetadataType">
      <xs:sequence>
        <xs:element ref="AstroCoordSystem"/>
        <xs:element ref="AstroCoords"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

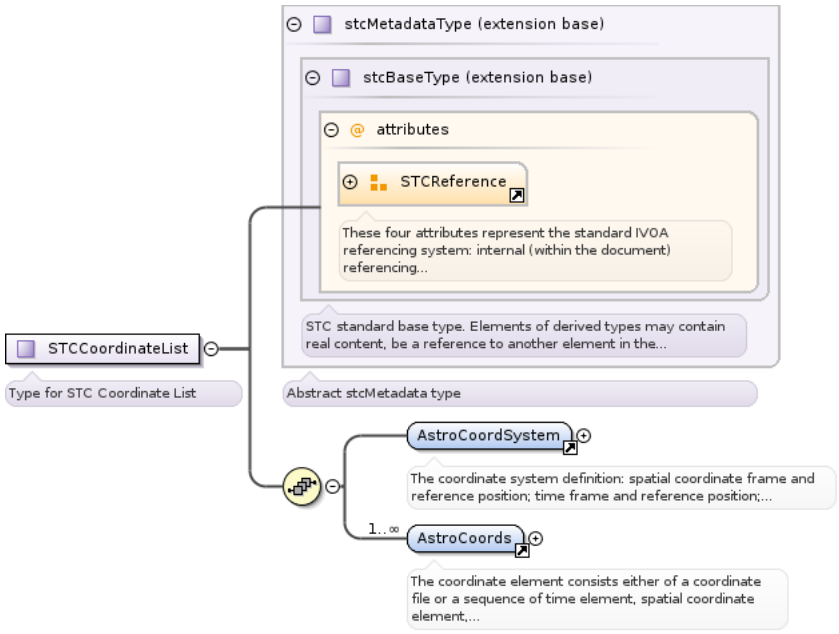
Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Complex Type `STCCoordinateList`

Namespace: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

Annotations: `Type for STC Coordinate List`

Diagram




Type: extension of stcMetadataType

Type hierarchy:

- stcBaseType
  - stcMetadataType
    - STCCoordinateList

Model: AstroCoordSystem , AstroCoords+

Children: AstroCoordSystem, AstroCoords

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **id** | xs:ID | | | optional |

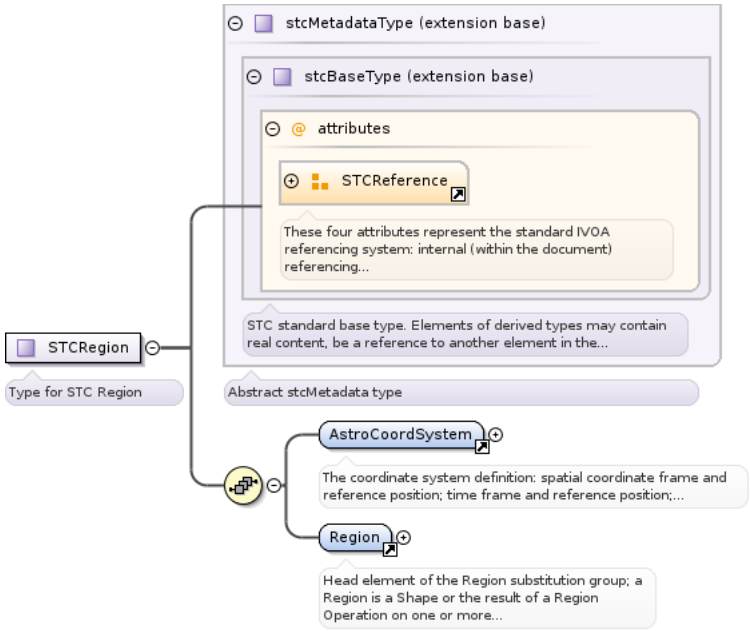
| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **idref** | xs:IDREF | | | optional |
| | **ucd** | xs:string | | | optional |
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:complexType name="STCCoordinateList">
  <xs:annotation>
    <xs:documentation>Type for STC Coordinate List</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="stcMetadataType">
      <xs:sequence>
        <xs:element ref="AstroCoordSystem"/>
        <xs:element ref="AstroCoords" maxOccurs="unbounded"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Complex Type STCRegion

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | Type for STC Region |
| Diagram |  |
| Type | extension of stcMetadataType |
| Type hierarchy | • stcBaseType<br>  • stcMetadataType<br>  • STCRegion |
| Model | AstroCoordSystem , Region |
| Children | AstroCoordSystem, Region |



Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |

| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **xlink:href** | xs:anyURI | | | optional |
| | **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:complexType name="STCRegion">
  <xs:annotation>
    <xs:documentation>Type for STC Region</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="stcMetadataType">
      <xs:sequence>
        <xs:element ref="AstroCoordSystem"/>
        <xs:element ref="Region"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

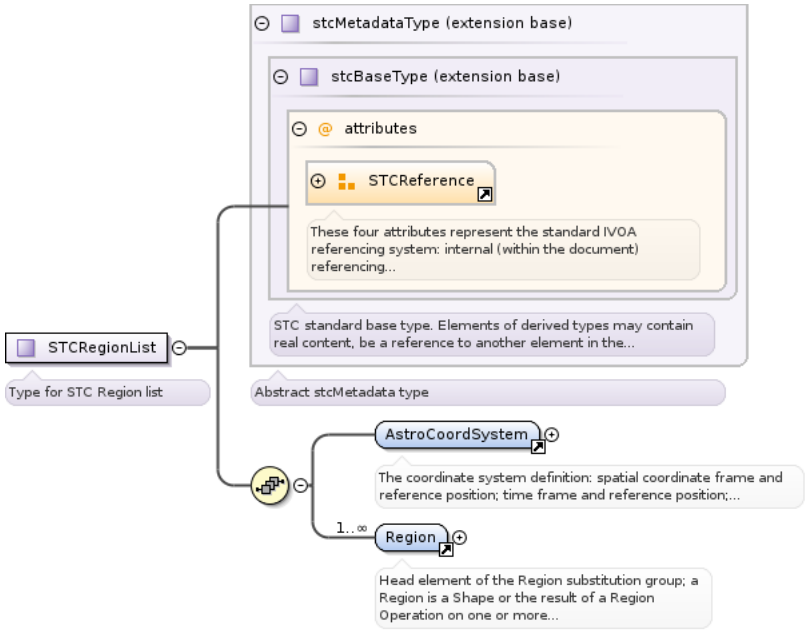
Schema location: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

## Complex Type `STCRegionList`

Namespace: http://www.ivoa.net/xml/STC/stc-v1.30.xsd

Annotations: `Type for STC Region list`

Diagram




Type: extension of stcMetadataType

Type hierarchy:

- stcBaseType
  - stcMetadataType
    - STCRegionList

Model: AstroCoordSystem , Region+

Children: AstroCoordSystem, Region

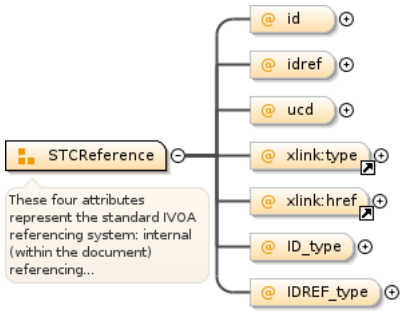
Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

| | |
|---|---|
| Source | <xs:complexType name="STCRegionList"><br>  <xs:annotation><br>  <xs:documentation>Type for STC Region list</xs:documentation><br>  </xs:annotation><br>  <xs:complexContent><br>  <xs:extension base="stcMetadataType"><br>  <xs:sequence><br>  <xs:element ref="AstroCoordSystem"/><br>  <xs:element ref="Region" maxOccurs="unbounded"/><br>  </xs:sequence><br>  </xs:extension><br>  </xs:complexContent><br></xs:complexType> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

# Attribute Group(s)

## Attribute Group STCReference

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |
| Annotations | These four attributes represent the standard IVOA referencing system: internal (within the document) referencing through "id" and "idref", external referencing through Xlink, using only "type=simple" and "href".<br><br>The attributes ID_type and IDREF_type allow the author to list attributes of type ID, respectively IDREF, enabling readers to identify these attributes without having to refer to the schema. This is important in cases where documents are concatenated (e.g., in registries), raising the potential for non-unique IDs. The value of these attributes is a string of comma-separated attribute names. |
| Diagram |  |
| Used by | Complex Types: double1Type, isoTimeType, jdTimeType, posAngleType, stcBaseType, timeOffsetType |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **IDREF_type** | xs:string | | | optional |
| **ID_type** | xs:string | | | optional |
| **id** | xs:ID | | | optional |
| **idref** | xs:IDREF | | | optional |
| **ucd** | xs:string | | | optional |
| **xlink:href** | xs:anyURI | | | optional |
| **xlink:type** | restriction of xs:NMTOKEN | | simple | optional |

Source

```
<xs:attributeGroup name="STCReference">
  <xs:annotation>
    <xs:documentation>These four attributes represent the standard IVOA referencing
 system: internal (within the document) referencing through "id" and "idref", external
 referencing through Xlink, using only "type=simple" and "href".</xs:documentation>
    <xs:documentation>The attributes ID_type and IDREF_type allow the author to list
 attributes of type ID, respectively IDREF, enabling readers to identify these attributes
 without having to refer to the schema. This is important in cases where documents are
 concatenated (e.g., in registries), raising the potential for non-unique IDs. The value
 of these attributes is a string of comma-separated attribute names.</xs:documentation>
  </xs:annotation>
  <xs:attribute name="id" type="xs:ID" use="optional"/>
  <xs:attribute name="idref" type="xs:IDREF" use="optional"/>
  <xs:attribute name="ucd" type="xs:string" use="optional"/>
  <xs:attribute ref="xlink:type" use="optional" default="simple"/>
  <xs:attribute ref="xlink:href" use="optional"/>
  <xs:attribute name="ID_type" type="xs:string" use="optional"/>
  <xs:attribute name="IDREF_type" type="xs:string" use="optional"/>
```

| | |
|---|---|
| | `</xs:attributeGroup>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

# Namespace: "http://www.w3.org/1999/xlink"

## Schema(s)

### Imported schema `xlink.xsd`

| | |
|---|---|
| Namespace | http://www.w3.org/1999/xlink |
| Properties | attribute form default: `qualified`<br>element form default: `qualified` |
| Schema location | http://www.ivoa.net/xml/Xlink/xlink.xsd |

## Attribute(s)

### Attribute `@xlink:type`

| | |
|---|---|
| Namespace | http://www.w3.org/1999/xlink |
| Type | restriction of xs:NMTOKEN |
| Properties | content: `simple` |
| Facets | enumeration `simple`<br>enumeration `extended`<br>enumeration `locator`<br>enumeration `arc`<br>enumeration `resource`<br>enumeration `title` |
| Used by | Attribute Group STCReference |
| `Source` | `<xs:attribute name="type">`<br>`  <xs:simpleType>`<br>`  <xs:restriction base="xs:NMTOKEN">`<br>`  <xs:enumeration value="simple"/>`<br>`  <xs:enumeration value="extended"/>`<br>`  <xs:enumeration value="locator"/>`<br>`  <xs:enumeration value="arc"/>`<br>`  <xs:enumeration value="resource"/>`<br>`  <xs:enumeration value="title"/>`<br>`  </xs:restriction>`<br>`  </xs:simpleType>`<br>`</xs:attribute>` |
| Schema location | http://www.ivoa.net/xml/Xlink/xlink.xsd |

### Attribute `@xlink:href`

| | |
|---|---|
| Namespace | http://www.w3.org/1999/xlink |
| Type | xs:anyURI |
| Properties | content: `simple` |
| Used by | Attribute Group STCReference |
| `Source` | `<xs:attribute name="href" type="xs:anyURI"/>` |
| Schema location | http://www.ivoa.net/xml/Xlink/xlink.xsd |

### Attribute `@xlink:role`

| | |
|---|---|
| Namespace | http://www.w3.org/1999/xlink |
| Type | xs:anyURI |

| | |
|---|---|
| Properties | content: simple |
| Source | <xs:attribute name="role" type="xs:anyURI"/> |
| Schema location | http://www.ivoa.net/xml/Xlink/xlink.xsd |

## Attribute @xlink:arcrole

| | |
|---|---|
| Namespace | http://www.w3.org/1999/xlink |
| Type | xs:anyURI |
| Properties | content: simple |
| Source | <xs:attribute name="arcrole" type="xs:anyURI"/> |
| Schema location | http://www.ivoa.net/xml/Xlink/xlink.xsd |

## Attribute @xlink:title

| | |
|---|---|
| Namespace | http://www.w3.org/1999/xlink |
| Type | xs:string |
| Properties | content: simple |
| Source | <xs:attribute name="title" type="xs:string"/> |
| Schema location | http://www.ivoa.net/xml/Xlink/xlink.xsd |

## Attribute @xlink:show

| | |
|---|---|
| Namespace | http://www.w3.org/1999/xlink |
| Type | restriction of xs:NMTOKEN |
| Properties | content: simple |
| Facets | enumeration: new<br>enumeration: replace<br>enumeration: embed<br>enumeration: other<br>enumeration: none |
| Source | <xs:attribute name="show"><br>  <xs:simpleType><br>  <xs:restriction base="xs:NMTOKEN"><br>  <xs:enumeration value="new"/><br>  <xs:enumeration value="replace"/><br>  <xs:enumeration value="embed"/><br>  <xs:enumeration value="other"/><br>  <xs:enumeration value="none"/><br>  </xs:restriction><br>  </xs:simpleType><br></xs:attribute> |
| Schema location | http://www.ivoa.net/xml/Xlink/xlink.xsd |

## Attribute @xlink:label

| | |
|---|---|
| Namespace | http://www.w3.org/1999/xlink |
| Type | xs:NMTOKEN |
| Properties | content: simple |
| Source | <xs:attribute name="label" type="xs:NMTOKEN"/> |
| Schema location | http://www.ivoa.net/xml/Xlink/xlink.xsd |

## Attribute @xlink:actuate

| | |
|---|---|
| Namespace | http://www.w3.org/1999/xlink |

| | |
|---|---|
| Type | restriction of xs:NMTOKEN |
| Properties | content: simple |
| Facets | enumeration onLoad<br>enumeration onRequest<br>enumeration other<br>enumeration none |
| Source | <xs:attribute name="actuate"><br><xs:simpleType><br><xs:restriction base="xs:NMTOKEN"><br><xs:enumeration value="onLoad"/><br><xs:enumeration value="onRequest"/><br><xs:enumeration value="other"/><br><xs:enumeration value="none"/><br></xs:restriction><br></xs:simpleType><br></xs:attribute> |
| Schema location | http://www.ivoa.net/xml/Xlink/xlink.xsd |

### Attribute @xlink:from

| | |
|---|---|
| Namespace | http://www.w3.org/1999/xlink |
| Type | xs:NMTOKEN |
| Properties | content: simple |
| Source | <xs:attribute name="from" type="xs:NMTOKEN"/> |
| Schema location | http://www.ivoa.net/xml/Xlink/xlink.xsd |

### Attribute @xlink:to

| | |
|---|---|
| Namespace | http://www.w3.org/1999/xlink |
| Type | xs:NMTOKEN |
| Properties | content: simple |
| Source | <xs:attribute name="to" type="xs:NMTOKEN"/> |
| Schema location | http://www.ivoa.net/xml/Xlink/xlink.xsd |

## Namespace: "http://www.ivoa.net/xml/VOResource/v1.0"

## Schema(s)

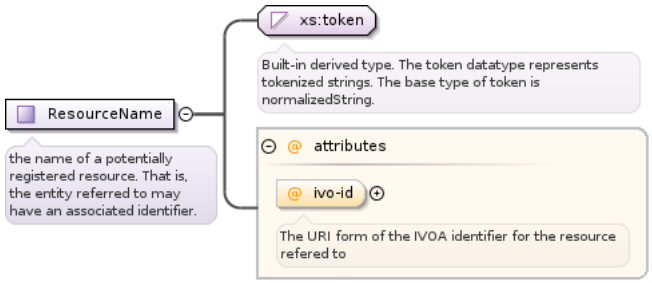
### Imported schema VOResource-v1.0.xsd

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/VOResource/v1.0 |
| Annotations | Implementation of an XML Schema describing a resource to<br>be used in the Virtual Observatory Project. Based on "Resource<br>Metadata for the Virtual Observatory", Version 0.8,<br>February 2002 by Bob Hanisch et al. |
| Properties | attribute form default: unqualified<br>element form default: unqualified<br>version: 1.02 |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Complex Type(s)

### Complex Type vr:ResourceName

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/VOResource/v1.0 |
| Annotations | the name of a potentially registered resource. That is, the entity<br>referred to may have an associated identifier. |

| | |
|---|---|
| Diagram |  |
| Type | extension of xs:token |
| Used by | Elements CurationMetadataType/publisher, vr:Contact/name, vr:Creator/name, vr:Curation/contributor, vr:Curation/publisher, vr:Organisation/facility, vr:Organisation/instrument, vr:Relationship/relatedResource |

Attributes

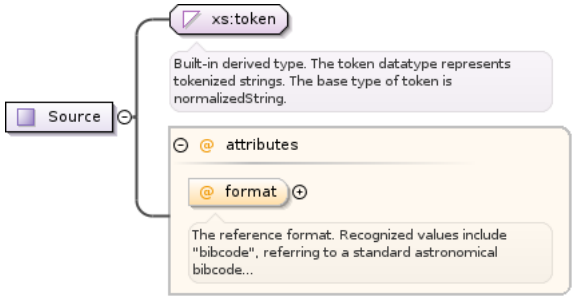
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **ivo-id** | vr:IdentifierURI | | | optional |
| | The URI form of the IVOA identifier for the resource refered to | | | |

Source

```
<xs:complexType name="ResourceName">
  <xs:annotation>
    <xs:documentation>the name of a potentially registered resource. That is, the entity
 referred to may have an associated identifier.</xs:documentation>
  </xs:annotation>
  <xs:simpleContent>
    <xs:extension base="xs:token">
      <xs:attribute name="ivo-id" type="vr:IdentifierURI">
        <xs:annotation>
          <xs:documentation>The URI form of the IVOA identifier for the resource refered
 to</xs:documentation>
        </xs:annotation>
      </xs:attribute>
    </xs:extension>
  </xs:simpleContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Complex Type `vr:Source`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/VOResource/v1.0 |
| Diagram |  |
| Type | extension of xs:token |
| Used by | Elements CurationMetadataType/reference, vr:Content/source |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **format** | xs:string | | | optional |
| | The reference format. Recognized values include "bibcode", referring to a standard astronomical bibcode (http://cdsweb.u-strasbg.fr/simbad/refcode.html). | | | |

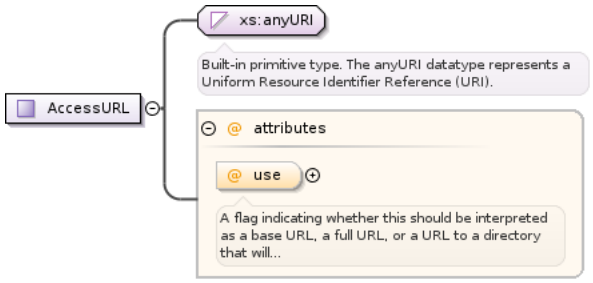
Source

```
<xs:complexType name="Source">
  <xs:simpleContent>
    <xs:extension base="xs:token">
      <xs:attribute name="format" type="xs:string">
        <xs:annotation>
          <xs:documentation>The reference format. Recognized values include "bibcode",
 referring to a standard astronomical bibcode (http://cdsweb.u-strasbg.fr/simbad/
refcode.html).</xs:documentation>
        </xs:annotation>
      </xs:attribute>
```

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

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Complex Type `vr:AccessURL`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/VOResource/v1.0 |
| Diagram |  |



| | |
|---|---|
| Type | extension of xs:anyURI |
| Used by | Elements FileType/accessURL, vr:Interface/accessURL |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **use** | restriction of xs:NMTOKEN | | | optional |

A flag indicating whether this should be interpreted as a base URL, a full URL, or a URL to a directory that will produce a listing of files.

The default value assumed when one is not given depends on the context.

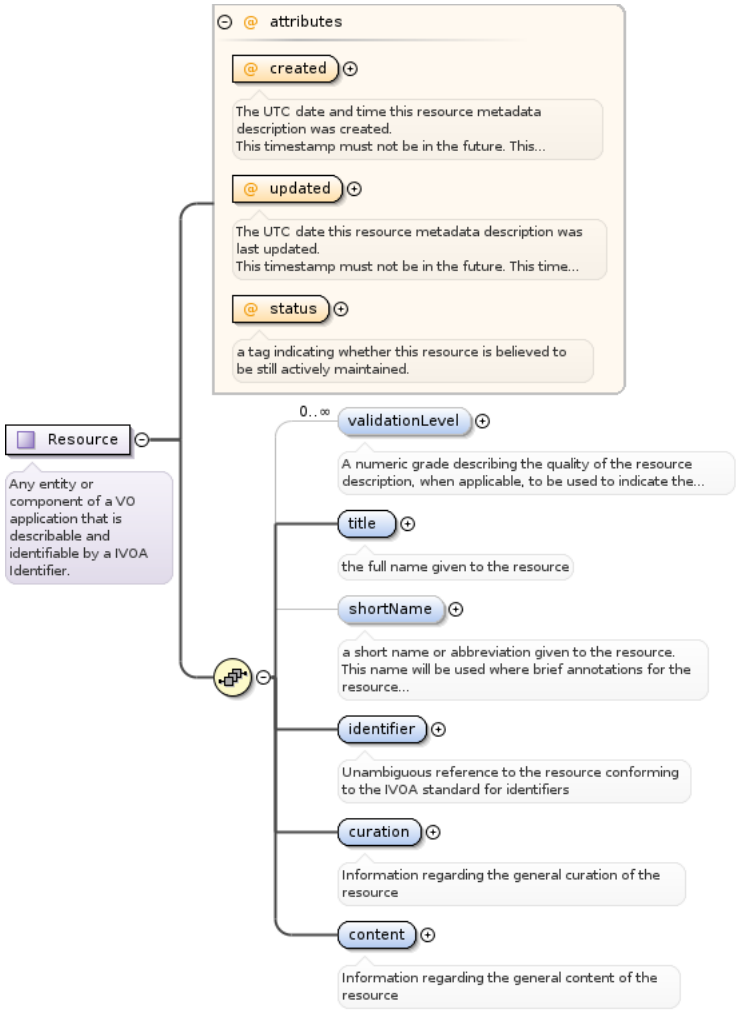
Source

```
<xs:complexType name="AccessURL">
  <xs:simpleContent>
    <xs:extension base="xs:anyURI">
      <xs:attribute name="use">
        <xs:annotation>
          <xs:documentation>A flag indicating whether this should be interpreted as a
 base URL, a full URL, or a URL to a directory that will produce a listing of files.</
xs:documentation>
          <xs:documentation>The default value assumed when one is not given depends on the
 context.</xs:documentation>
        </xs:annotation>
        <xs:simpleType>
          <xs:restriction base="xs:NMTOKEN">
            <xs:enumeration value="full">
              <xs:annotation>
                <xs:documentation>Assume a full URL--that is, one that can be invoked
 directly without alteration. This usually returns a single document or file.</
xs:documentation>
              </xs:annotation>
            </xs:enumeration>
            <xs:enumeration value="base">
              <xs:annotation>
                <xs:documentation>Assume a base URL--that is, one requiring an extra
 portion to be appended before being invoked.</xs:documentation>
              </xs:annotation>
            </xs:enumeration>
            <xs:enumeration value="dir">
              <xs:annotation>
                <xs:documentation>Assume URL points to a directory that will return a
 listing of files.</xs:documentation>
              </xs:annotation>
            </xs:enumeration>
          </xs:restriction>
        </xs:simpleType>
      </xs:attribute>
    </xs:extension>
  </xs:simpleContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Complex Type `vr:Resource`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/VOResource/v1.0 |

| | |
|---|---|
| Annotations | Any entity or component of a VO application that is describable and identifiable by a IVOA Identifier. |
| Diagram |  |
| Used by | Complex Types vr:Organisation, vr:Service |
| Model | validationLevel* , title , shortName{0,1} , identifier , curation , content |
| Children | content, curation, identifier, shortName, title, validationLevel |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **created** | xs:dateTime | | | required |
| | The UTC date and time this resource metadata description was created.<br><br>This timestamp must not be in the future. This time is not required to be accurate; it should be at least accurate to the day. Any insignificant time fields should be set to zero. | | | |
| **status** | restriction of xs:string | | | required |
| | a tag indicating whether this resource is believed to be still actively maintained. | | | |
| **updated** | xs:dateTime | | | required |
| | The UTC date this resource metadata description was last updated.<br><br>This timestamp must not be in the future. This time is not required to be accurate; it should be at least accurate to the day. Any insignificant time fields should be set to zero. | | | |

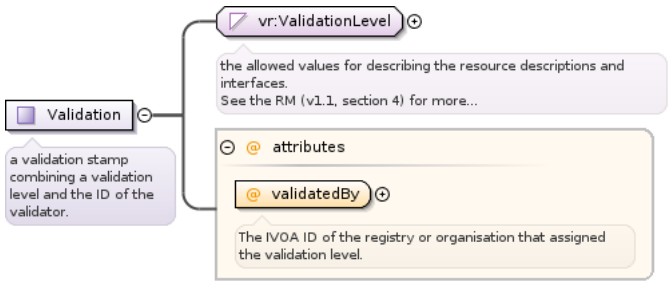
Source

```
<xs:complexType name="Resource">
  <xs:annotation>
    <xs:documentation>Any entity or component of a VO application that is describable and
 identifiable by a IVOA Identifier.</xs:documentation>
  </xs:annotation>
```

```
 <xs:sequence>
   <xs:element name="validationLevel" type="vr:Validation" minOccurs="0"
 maxOccurs="unbounded">
     <xs:annotation>
       <xs:documentation>A numeric grade describing the quality of the resource
 description, when applicable, to be used to indicate the confidence an end-user can put
 in the resource as part of a VO application or research study.</xs:documentation>
       <xs:documentation>See vr:ValidationLevel for an explanation of the allowed
 levels.</xs:documentation>
       <xs:documentation>Note that when this resource is a Service, this grade applies to
 the core set of metadata. Capability and interface metadata, as well as the compliance
 of the service with the interface standard, is rated by validationLevel tag in the
 capability element (see the vr:Service complex type).</xs:documentation>
     </xs:annotation>
   </xs:element>
   <xs:element name="title" type="xs:token">
     <xs:annotation>
       <xs:appinfo>
         <vm:dcterm>Title</vm:dcterm>
       </xs:appinfo>
       <xs:documentation>the full name given to the resource</xs:documentation>
     </xs:annotation>
   </xs:element>
   <xs:element name="shortName" type="vr:ShortName" minOccurs="0">
     <xs:annotation>
       <xs:documentation>a short name or abbreviation given to the resource.</
xs:documentation>
       <xs:documentation>This name will be used where brief annotations for the resource
 name are required. Applications may use to refer to this resource in a compact display.</
xs:documentation>
       <xs:documentation>One word or a few letters is recommended. No more than sixteen
 characters are allowed.</xs:documentation>
     </xs:annotation>
   </xs:element>
   <xs:element name="identifier" type="vr:IdentifierURI">
     <xs:annotation>
       <xs:appinfo>
         <vm:dcterm>Identifier</vm:dcterm>
       </xs:appinfo>
       <xs:documentation>Unambiguous reference to the resource conforming to the IVOA
 standard for identifiers</xs:documentation>
     </xs:annotation>
   </xs:element>
   <xs:element name="curation" type="vr:Curation">
     <xs:annotation>
       <xs:documentation>Information regarding the general curation of the resource</
xs:documentation>
     </xs:annotation>
   </xs:element>
   <xs:element name="content" type="vr:Content">
     <xs:annotation>
       <xs:documentation>Information regarding the general content of the resource</
xs:documentation>
     </xs:annotation>
   </xs:element>
 </xs:sequence>
 <xs:attribute name="created" type="xs:dateTime" use="required">
   <xs:annotation>
     <xs:documentation>The UTC date and time this resource metadata description was
 created.</xs:documentation>
     <xs:documentation>This timestamp must not be in the future. This time is not
 required to be accurate; it should be at least accurate to the day. Any insignificant
 time fields should be set to zero.</xs:documentation>
   </xs:annotation>
 </xs:attribute>
 <xs:attribute name="updated" type="xs:dateTime" use="required">
   <xs:annotation>
     <xs:documentation>The UTC date this resource metadata description was last
 updated.</xs:documentation>
     <xs:documentation>This timestamp must not be in the future. This time is not
 required to be accurate; it should be at least accurate to the day. Any insignificant
 time fields should be set to zero.</xs:documentation>
   </xs:annotation>
 </xs:attribute>
 <xs:attribute name="status" use="required">
   <xs:annotation>
     <xs:documentation>a tag indicating whether this resource is believed to be still
 actively maintained.</xs:documentation>
   </xs:annotation>
   <xs:simpleType>
     <xs:restriction base="xs:string">
       <xs:enumeration value="active">
         <xs:annotation>
```

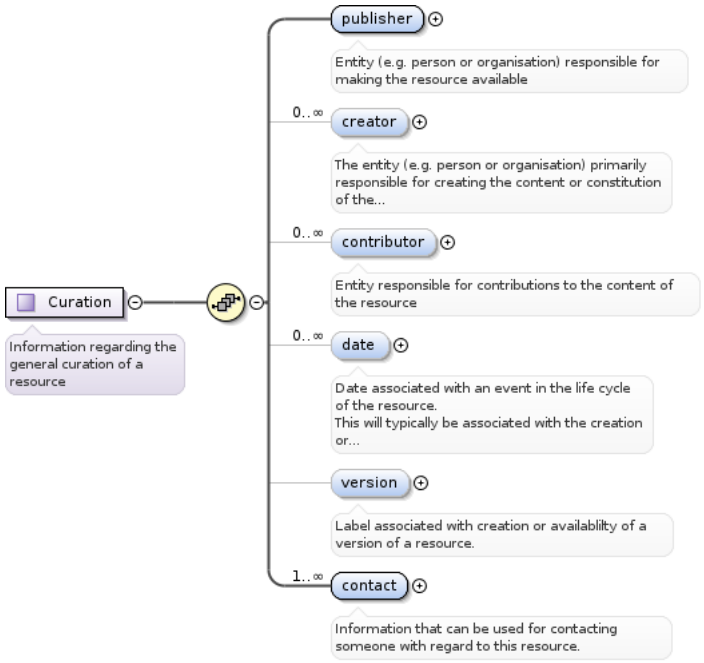
<table>
<tr><td></td><td><pre>
            <xs:documentation>resource is believed to be currently maintained, and its
 description is up to date (default).</xs:documentation>
          </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="inactive">
          <xs:annotation>
            <xs:documentation>resource is apparently not being maintained at the
 present.</xs:documentation>
          </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="deleted">
          <xs:annotation>
            <xs:documentation>resource publisher has explicitly deleted the resource.</
xs:documentation>
          </xs:annotation>
        </xs:enumeration>
      </xs:restriction>
    </xs:simpleType>
  </xs:attribute>
</xs:complexType>
</pre></td></tr>
<tr><td>Schema location</td><td>http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd</td></tr>
</table>

## Complex Type `vr:Validation`

<table>
<tr><td>Namespace</td><td>http://www.ivoa.net/xml/VOResource/v1.0</td></tr>
<tr><td>Annotations</td><td>a validation stamp combining a validation level and the ID of<br>the validator.</td></tr>
<tr><td>Diagram</td><td> 
</td></tr>
<tr><td>Type</td><td>extension of vr:ValidationLevel</td></tr>
<tr><td>Type hierarchy</td><td>• xs:integer<br>• vr:ValidationLevel<br>• vr:Validation</td></tr>
<tr><td>Used by</td><td>Elements vr:Capability/validationLevel, vr:Resource/validationLevel</td></tr>
<tr><td>Attributes</td><td>
<table>
<tr><th>QName</th><th>Type</th><th>Fixed</th><th>Default</th><th>Use</th></tr>
<tr><td>validatedBy</td><td>vr:IdentifierURI</td><td></td><td></td><td>required</td></tr>
<tr><td></td><td colspan="4">The IVOA ID of the registry or organisation that<br>assigned the validation level.</td></tr>
</table>
</td></tr>
<tr><td>Source</td><td><pre>
<xs:complexType name="Validation">
  <xs:annotation>
    <xs:documentation>a validation stamp combining a validation level and the ID of the
 validator.</xs:documentation>
  </xs:annotation>
  <xs:simpleContent>
    <xs:extension base="vr:ValidationLevel">
      <xs:attribute name="validatedBy" type="vr:IdentifierURI" use="required">
        <xs:annotation>
          <xs:documentation>The IVOA ID of the registry or organisation that assigned the
 validation level.</xs:documentation>
        </xs:annotation>
      </xs:attribute>
    </xs:extension>
  </xs:simpleContent>
</xs:complexType>
</pre></td></tr>
<tr><td>Schema location</td><td>http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd</td></tr>
</table>

## Complex Type `vr:Curation`

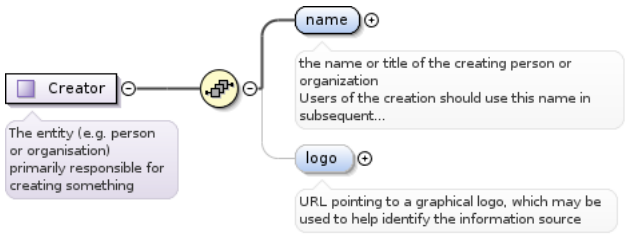
<table>
<tr><td>Namespace</td><td>http://www.ivoa.net/xml/VOResource/v1.0</td></tr>
<tr><td>Annotations</td><td>Information regarding the general curation of a resource</td></tr>
</table>

| | |
|---|---|
| Diagram |  |
| Used by | Element vr:Resource/curation |
| Model | publisher , creator* , contributor* , date* , version{0,1} , contact+ |
| Children | contact, contributor, creator, date, publisher, version |
| Source | <xs:complexType name="Curation"><br>  <xs:annotation><br>  <xs:documentation>Information regarding the general curation of a resource</xs:documentation><br>  </xs:annotation><br>  <xs:sequence><br>  <xs:element name="publisher" type="vr:ResourceName"><br>  <xs:annotation><br>  <xs:appinfo><br>  <vm:dcterm>Publisher</vm:dcterm><br>  </xs:appinfo><br>  <xs:documentation>Entity (e.g. person or organisation) responsible for making the resource available</xs:documentation><br>  </xs:annotation><br>  </xs:element><br>  <xs:element name="creator" type="vr:Creator" minOccurs="0" maxOccurs="unbounded"><br>  <xs:annotation><br>  <xs:appinfo><br>  <vm:dcterm>Creator</vm:dcterm><br>  </xs:appinfo><br>  <xs:documentation>The entity (e.g. person or organisation) primarily responsible for creating the content or constitution of the resource.</xs:documentation><br>  <xs:documentation>A logo need only be provided for the first occurance. When multiple logos are supplied via multiple creator elements, the application is free to choose which to use.</xs:documentation><br>  </xs:annotation><br>  </xs:element><br>  <xs:element name="contributor" type="vr:ResourceName" minOccurs="0" maxOccurs="unbounded"><br>  <xs:annotation><br>  <xs:appinfo><br>  <vm:dcterm>Contributor</vm:dcterm><br>  </xs:appinfo><br>  <xs:documentation>Entity responsible for contributions to the content of the resource</xs:documentation><br>  </xs:annotation><br>  </xs:element><br>  <xs:element name="date" type="vr:Date" minOccurs="0" maxOccurs="unbounded"><br>  <xs:annotation><br>  <xs:appinfo><br>  <vm:dcterm>Date</vm:dcterm><br>  </xs:appinfo><br>  <xs:documentation>Date associated with an event in the life cycle of the resource.</xs:documentation> |

```
        <xs:documentation>This will typically be associated with the creation or
 availability (i.e., most recent release or version) of the resource. Use the role
 attribute to clarify.</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="version" type="xs:token" minOccurs="0">
      <xs:annotation>
        <xs:documentation>Label associated with creation or availablilty of a version of a
 resource.</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="contact" type="vr:Contact" maxOccurs="unbounded">
      <xs:annotation>
        <xs:documentation>Information that can be used for contacting someone with regard
 to this resource.</xs:documentation>
      </xs:annotation>
    </xs:element>
  </xs:sequence>
</xs:complexType>
```

| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |
|---|---|

## Complex Type `vr:Creator`

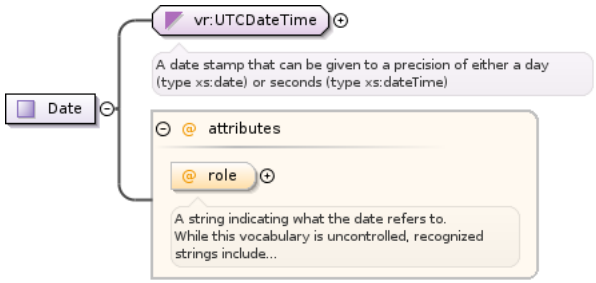
| Namespace | http://www.ivoa.net/xml/VOResource/v1.0 |
|---|---|
| Annotations | The entity (e.g. person or organisation) primarily responsible for creating something |
| Diagram |   |
| Used by | Element vr:Curation/creator |
| Model | name , logo{0,1} |
| Children | logo, name |
| Source | |

```
<xs:complexType name="Creator">
  <xs:annotation>
    <xs:documentation>The entity (e.g. person or organisation) primarily responsible for
 creating something</xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="name" type="vr:ResourceName">
      <xs:annotation>
        <xs:documentation>the name or title of the creating person or organization</
xs:documentation>
        <xs:documentation>Users of the creation should use this name in subsequent credits
 and acknowledgements.</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="logo" type="xs:anyURI" minOccurs="0">
      <xs:annotation>
        <xs:documentation>URL pointing to a graphical logo, which may be used to help
 identify the information source</xs:documentation>
      </xs:annotation>
    </xs:element>
  </xs:sequence>
</xs:complexType>
```

| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |
|---|---|

## Complex Type `vr:Date`

| Namespace | http://www.ivoa.net/xml/VOResource/v1.0 |
|---|---|

| | |
|---|---|
| Diagram |  |
| Type | extension of vr:UTCDateTime |
| Type hierarchy | • xs:anySimpleType<br>  • vr:UTCDateTime<br>  • vr:Date |
| Used by | Element vr:Curation/date |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **role** | xs:string | | representative | optional |

A string indicating what the date refers to.

While this vocabulary is uncontrolled, recognized strings include "creation", indicating the date that the resource itself was created, and "update", indicating when the resource was updated last. The default value, "representative", means that the date is a rough representation of the time coverage of the resource.

Note that this date refers to the resource; dates describing the metadata description of the resource are handled by the "created" and "updated" attributes of the Resource element.

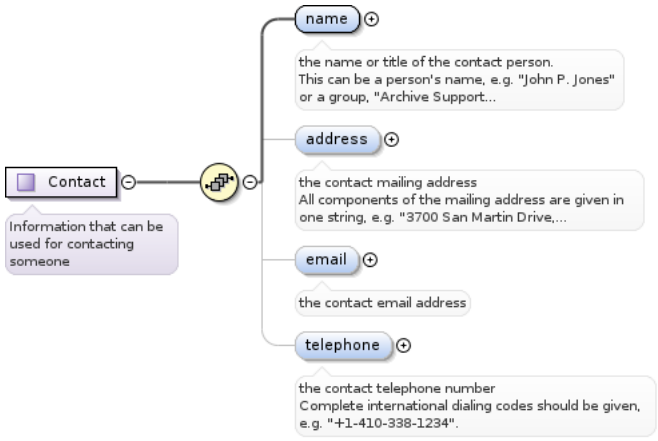
Source

```
<xs:complexType name="Date">
  <xs:simpleContent>
    <xs:extension base="vr:UTCDateTime">
      <xs:attribute name="role" type="xs:string" default="representative">
        <xs:annotation>
          <xs:documentation>A string indicating what the date refers to.</
xs:documentation>
          <xs:documentation>While this vocabulary is uncontrolled, recognized strings
 include "creation", indicating the date that the resource itself was created,
 and "update", indicating when the resource was updated last. The default value,
 "representative", means that the date is a rough representation of the time coverage of
 the resource.</xs:documentation>
          <xs:documentation>Note that this date refers to the resource; dates describing
 the metadata description of the resource are handled by the "created" and "updated"
 attributes of the Resource element.</xs:documentation>
        </xs:annotation>
      </xs:attribute>
    </xs:extension>
  </xs:simpleContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

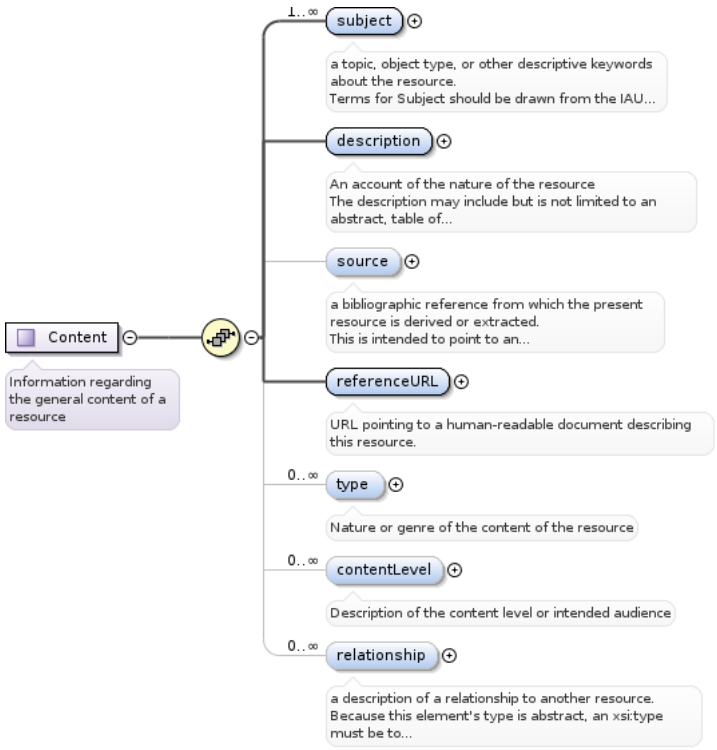
## Complex Type `vr:Contact`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/VOResource/v1.0 |
| Annotations | Information that can be used for contacting someone |

| | |
|---|---|
| Diagram |  |
| Used by | Element vr:Curation/contact |
| Model | name , address{0,1} , email{0,1} , telephone{0,1} |
| Children | address, email, name, telephone |
| Source | `<xs:complexType name="Contact">`<br>`  <xs:annotation>`<br>`  <xs:documentation>Information that can be used for contacting someone</xs:documentation>`<br>`  </xs:annotation>`<br>`  <xs:sequence>`<br>`  <xs:element name="name" type="vr:ResourceName">`<br>`  <xs:annotation>`<br>`  <xs:documentation>the name or title of the contact person.</xs:documentation>`<br>`  <xs:documentation>This can be a person's name, e.g. "John P. Jones" or a group, "Archive Support Team".</xs:documentation>`<br>`  </xs:annotation>`<br>`  </xs:element>`<br>`  <xs:element name="address" type="xs:token" minOccurs="0">`<br>`  <xs:annotation>`<br>`  <xs:documentation>the contact mailing address</xs:documentation>`<br>`  <xs:documentation>All components of the mailing address are given in one string, e.g. "3700 San Martin Drive, Baltimore, MD 21218 USA".</xs:documentation>`<br>`  </xs:annotation>`<br>`  </xs:element>`<br>`  <xs:element name="email" type="xs:token" minOccurs="0">`<br>`  <xs:annotation>`<br>`  <xs:documentation>the contact email address</xs:documentation>`<br>`  </xs:annotation>`<br>`  </xs:element>`<br>`  <xs:element name="telephone" type="xs:token" minOccurs="0">`<br>`  <xs:annotation>`<br>`  <xs:documentation>the contact telephone number</xs:documentation>`<br>`  <xs:documentation>Complete international dialing codes should be given, e.g. "+1-410-338-1234".</xs:documentation>`<br>`  </xs:annotation>`<br>`  </xs:element>`<br>`  </xs:sequence>`<br>`</xs:complexType>` |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Complex Type `vr:Content`

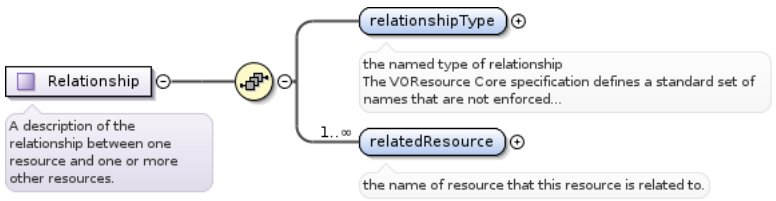
| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/VOResource/v1.0 |
| Annotations | `Information regarding the general content of a resource` |

| | |
|---|---|
| Diagram |  |
| Used by | Element vr:Resource/content |
| Model | subject+ , description , source{0,1} , referenceURL , type* , contentLevel* , relationship* |
| Children | contentLevel, description, referenceURL, relationship, source, subject, type |
| Source | <xs:complexType name="Content"><br><xs:annotation><br><xs:documentation>Information regarding the general content of a resource</xs:documentation><br></xs:annotation><br><xs:sequence><br><xs:element name="subject" type="xs:token" maxOccurs="unbounded"><br><xs:annotation><br><xs:appinfo><br><vm:dcterm>Subject</vm:dcterm><br></xs:appinfo><br><xs:documentation>a topic, object type, or other descriptive keywords about the resource.</xs:documentation><br><xs:documentation>Terms for Subject should be drawn from the IAU Astronomy Thesaurus (http://msowww.anu.edu.au/library/thesaurus/).</xs:documentation><br></xs:annotation><br></xs:element><br><xs:element name="description" type="xs:token"><br><xs:annotation><br><xs:appinfo><br><vm:dcterm>Description</vm:dcterm><br></xs:appinfo><br><xs:documentation>An account of the nature of the resource</xs:documentation><br><xs:documentation>The description may include but is not limited to an abstract, table of contents, reference to a graphical representation of content or a free-text account of the content.</xs:documentation><br></xs:annotation><br></xs:element><br><xs:element name="source" type="vr:Source" minOccurs="0"><br><xs:annotation><br><xs:appinfo><br><vm:dcterm>Source</vm:dcterm><br></xs:appinfo><br><xs:documentation>a bibliographic reference from which the present resource is derived or extracted.</xs:documentation><br><xs:documentation>This is intended to point to an article in the published literature. An ADS Bibcode is recommended as a value when available.</xs:documentation><br></xs:annotation><br></xs:element><br><xs:element name="referenceURL" type="xs:anyURI"><br><xs:annotation><br><xs:documentation>URL pointing to a human-readable document describing this resource.</xs:documentation> |

```
      </xs:annotation>
    </xs:element>
    <xs:element name="type" type="vr:Type" minOccurs="0" maxOccurs="unbounded">
      <xs:annotation>
        <xs:appinfo>
          <vm:dcterm>Type</vm:dcterm>
        </xs:appinfo>
        <xs:documentation>Nature or genre of the content of the resource</
xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="contentLevel" type="vr:ContentLevel" minOccurs="0"
 maxOccurs="unbounded">
      <xs:annotation>
        <xs:appinfo>
          <vm:dcterm>Subject</vm:dcterm>
          <vm:dcterm>Subject.ContentLevel</vm:dcterm>
        </xs:appinfo>
        <xs:documentation>Description of the content level or intended audience</
xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="relationship" type="vr:Relationship" minOccurs="0"
 maxOccurs="unbounded">
      <xs:annotation>
        <xs:documentation>a description of a relationship to another resource.</
xs:documentation>
        <xs:documentation>Because this element's type is abstract, an xsi:type must be to
 indicate the set of relationship types that are valid.</xs:documentation>
      </xs:annotation>
    </xs:element>
  </xs:sequence>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

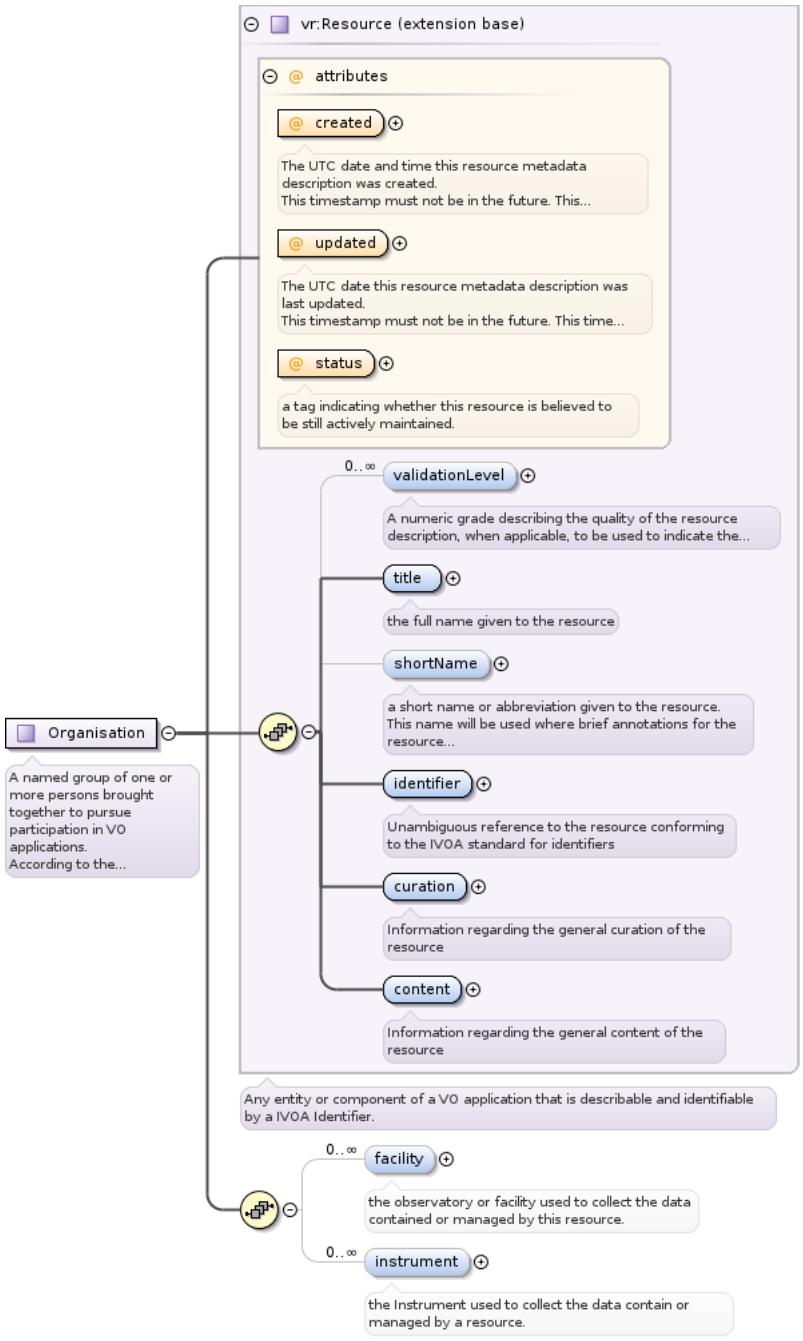
## Complex Type `vr:Relationship`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/VOResource/v1.0 |
| Annotations | A description of the relationship between one resource and one or more other resources. |
| Diagram |  |
| Used by | Element vr:Content/relationship |
| Model | relationshipType , relatedResource+ |
| Children | relatedResource, relationshipType |
| Source | |

```
<xs:complexType name="Relationship">
  <xs:annotation>
    <xs:documentation>A description of the relationship between one resource and one or
 more other resources.</xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="relationshipType" type="xs:token">
      <xs:annotation>
        <xs:documentation>the named type of relationship</xs:documentation>
        <xs:documentation>The VOResource Core specification defines a standard set of
 names that are not enforced by this schema, but are otherwise required by the spec.</
xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="relatedResource" type="vr:ResourceName" minOccurs="1"
 maxOccurs="unbounded">
      <xs:annotation>
        <xs:documentation>the name of resource that this resource is related to.</
xs:documentation>
      </xs:annotation>
    </xs:element>
  </xs:sequence>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Complex Type `vr:Organisation`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/VOResource/v1.0 |
| Annotations | A named group of one or more persons brought together to pursue participation in VO applications.<br><br>According to the Resource Metadata Recommendation, organisations "can be hierarchical and range in size and scope. At a high level, an organisation could be a university, observatory, or government agency. At a finer level, it could be a specific scientific project, mission, or individual researcher."<br><br>The main purpose of an organisation as a registered resource is to serve as a publisher of other resources. |
| Diagram |  |
| Type | extension of vr:Resource |
| Type hierarchy | • vr:Resource<br>  • vr:Organisation |
| Model | validationLevel* , title , shortName{0,1} , identifier , curation , content , facility* , instrument* |

| | |
|---|---|
| Children | content, curation, facility, identifier, instrument, shortName, title, validationLevel |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **created** | xs:dateTime | | | required |
| | The UTC date and time this resource metadata description was created.<br><br>This timestamp must not be in the future. This time is not required to be accurate; it should be at least accurate to the day. Any insignificant time fields should be set to zero. | | | |
| **status** | restriction of xs:string | | | required |
| | a tag indicating whether this resource is believed to be still actively maintained. | | | |
| **updated** | xs:dateTime | | | required |
| | The UTC date this resource metadata description was last updated.<br><br>This timestamp must not be in the future. This time is not required to be accurate; it should be at least accurate to the day. Any insignificant time fields should be set to zero. | | | |

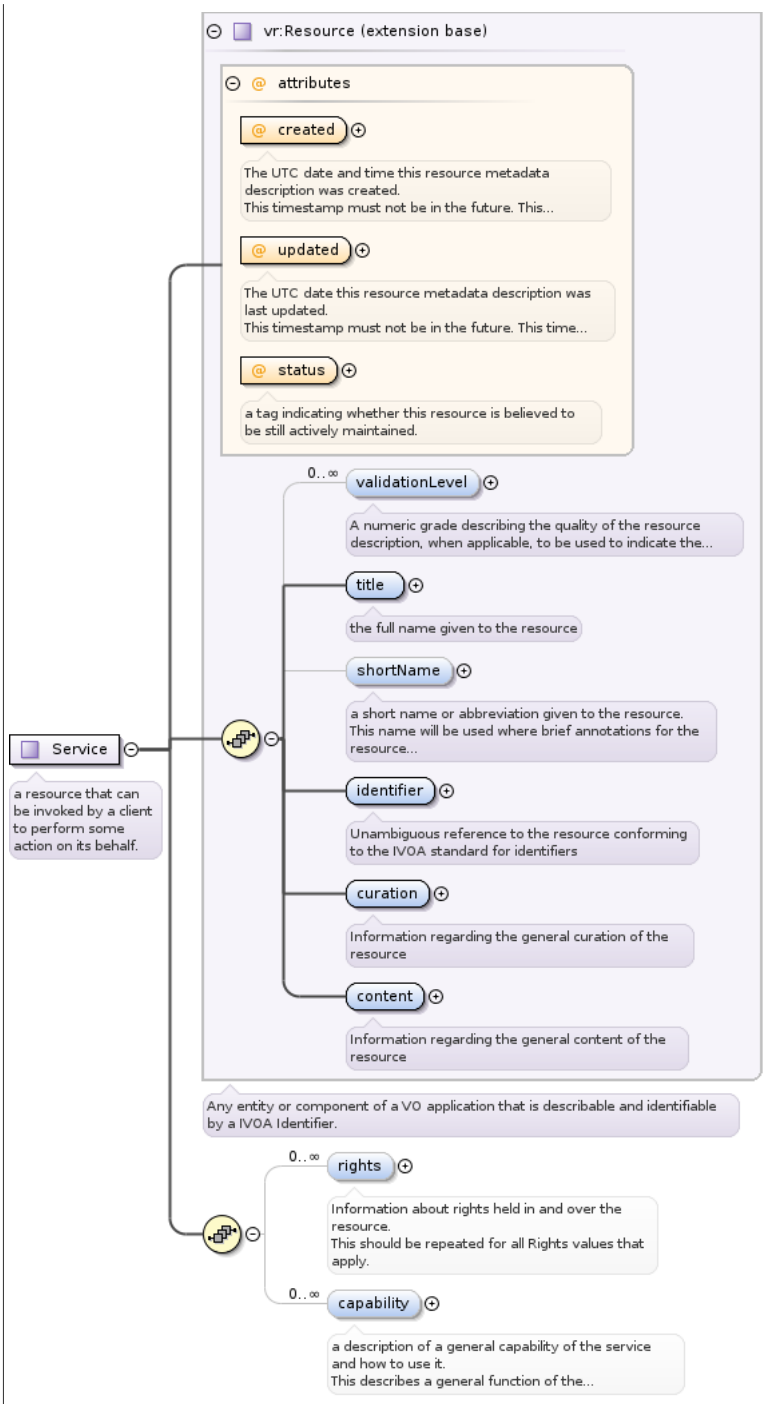
Source

```
<xs:complexType name="Organisation">
  <xs:annotation>
    <xs:documentation>A named group of one or more persons brought together to pursue
 participation in VO applications.</xs:documentation>
    <xs:documentation>According to the Resource Metadata Recommendation, organisations
 "can be hierarchical and range in size and scope. At a high level, an organisation could
 be a university, observatory, or government agency. At a finer level, it could be a
 specific scientific project, mission, or individual researcher."</xs:documentation>
    <xs:documentation>The main purpose of an organisation as a registered resource is to
 serve as a publisher of other resources.</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="vr:Resource">
      <xs:sequence>
        <xs:element name="facility" type="vr:ResourceName" minOccurs="0"
 maxOccurs="unbounded">
          <xs:annotation>
            <xs:appinfo>
              <vm:dcterm>Subject</vm:dcterm>
            </xs:appinfo>
            <xs:documentation>the observatory or facility used to collect the data
 contained or managed by this resource.</xs:documentation>
          </xs:annotation>
        </xs:element>
        <xs:element name="instrument" type="vr:ResourceName" minOccurs="0"
 maxOccurs="unbounded">
          <xs:annotation>
            <xs:appinfo>
              <vm:dcterm>Subject</vm:dcterm>
              <vm:dcterm>Subject.Instrument</vm:dcterm>
            </xs:appinfo>
            <xs:documentation>the Instrument used to collect the data contain or managed
 by a resource.</xs:documentation>
          </xs:annotation>
        </xs:element>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Complex Type `vr:Service`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/VOResource/v1.0 |
| Annotations | a resource that can be invoked by a client to perform some action on its behalf. |

| | |
|---|---|
| Diagram |  |
| Type | extension of vr:Resource |
| Type hierarchy | • vr:Resource<br>  • vr:Service |
| Model | validationLevel* , title , shortName{0,1} , identifier , curation , content , rights* , capability* |
| Children | capability, content, curation, identifier, rights, shortName, title, validationLevel |
| Attributes | **QName** \| **Type** \| **Fixed** \| **Default** \| **Use**<br>**created** \| xs:dateTime \| \| \| required<br>The UTC date and time this resource metadata description was created.<br>This timestamp must not be in the future. This time is not required to be accurate; it should be at least accurate to the day. Any insignificant time fields should be set to zero. |

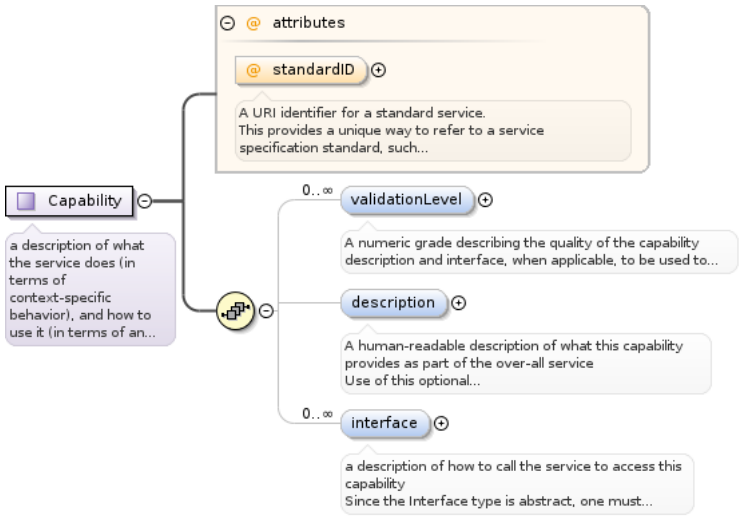
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **status** | restriction of xs:string | | | required |
| | a tag indicating whether this resource is believed to be still actively maintained. | | | |
| **updated** | xs:dateTime | | | required |
| | The UTC date this resource metadata description was last updated.<br><br>This timestamp must not be in the future. This time is not required to be accurate; it should be at least accurate to the day. Any insignificant time fields should be set to zero. | | | |

Source

```
<xs:complexType name="Service">
  <xs:annotation>
    <xs:documentation>a resource that can be invoked by a client to perform some action on
 its behalf.</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="vr:Resource">
      <xs:sequence>
        <xs:element name="rights" type="vr:Rights" minOccurs="0" maxOccurs="unbounded">
          <xs:annotation>
            <xs:appinfo>
              <vm:dcterm>Rights</vm:dcterm>
            </xs:appinfo>
            <xs:documentation>Information about rights held in and over the resource.</
xs:documentation>
            <xs:documentation>This should be repeated for all Rights values that apply.</
xs:documentation>
          </xs:annotation>
        </xs:element>
        <xs:element name="capability" type="vr:Capability" minOccurs="0"
 maxOccurs="unbounded">
          <xs:annotation>
            <xs:documentation>a description of a general capability of the service and how
 to use it.</xs:documentation>
            <xs:documentation>This describes a general function of the service, usually in
 terms of a standard service protocol (e.g. SIA), but not necessarily.</xs:documentation>
            <xs:documentation>A service can have many capabilities associated with it,
 each reflecting different aspects of the functionality it provides.</xs:documentation>
          </xs:annotation>
        </xs:element>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

Schema location: http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd

## Complex Type `vr:Capability`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/VOResource/v1.0 |
| Annotations | a description of what the service does (in terms of context-specific behavior), and how to use it (in terms of an interface) |
| Diagram |  |

| | |
|---|---|
| Used by | Element vr:Service/capability |
| Model | validationLevel* , description{0,1} , interface* |
| Children | description, interface, validationLevel |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **standardID** | xs:anyURI | | | optional |
| | A URI identifier for a standard service.<br><br>This provides a unique way to refer to a service specification standard, such as a Simple Image Access service. The use of an IVOA identifier here implies that a VOResource description of the standard is registered and accessible. | | | |

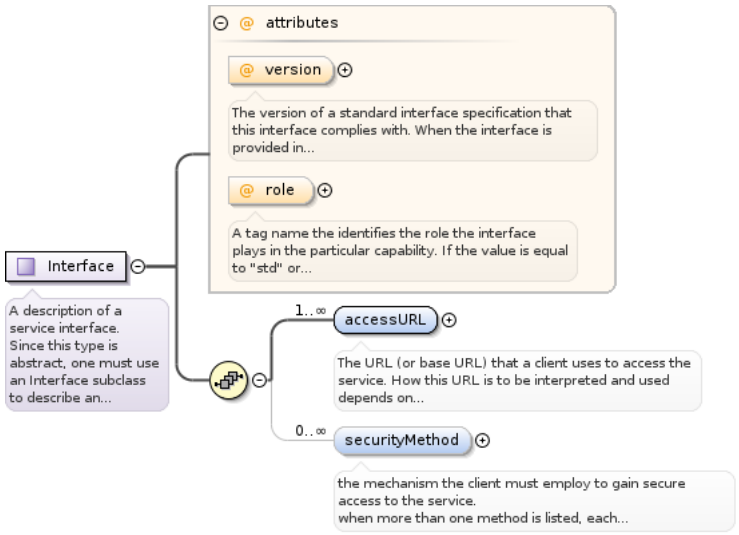
Source

```
<xs:complexType name="Capability">
  <xs:annotation>
    <xs:documentation>a description of what the service does (in terms of context-specific
 behavior), and how to use it (in terms of an interface)</xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="validationLevel" type="vr:Validation" minOccurs="0"
 maxOccurs="unbounded">
      <xs:annotation>
        <xs:documentation>A numeric grade describing the quality of the capability
 description and interface, when applicable, to be used to indicate the confidence
 an end-user can put in the resource as part of a VO application or research study.</
xs:documentation>
        <xs:documentation>See vr:ValidationLevel for an explanation of the allowed
 levels.</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="description" type="xs:token" minOccurs="0">
      <xs:annotation>
        <xs:documentation>A human-readable description of what this capability provides as
 part of the over-all service</xs:documentation>
        <xs:documentation>Use of this optional element is especially encouraged when this
 capability is non-standard and is one of several capabilities listed.</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="interface" type="vr:Interface" minOccurs="0" maxOccurs="unbounded">
      <xs:annotation>
        <xs:documentation>a description of how to call the service to access this
 capability</xs:documentation>
        <xs:documentation>Since the Interface type is abstract, one must describe the
 interface using a subclass of Interface, denoting it via xsi:type.</xs:documentation>
        <xs:documentation>Multiple occurances can describe different interfaces to the
 logically same capability--i.e. data or functionality. That is, the inputs accepted and
 the output provides should be logically the same. For example, a WebBrowser interface
 given in addition to a WebService interface would simply provide an interactive, human-
targeted interface to the underlying WebService interface.</xs:documentation>
      </xs:annotation>
    </xs:element>
  </xs:sequence>
  <xs:attribute name="standardID" type="xs:anyURI">
    <xs:annotation>
      <xs:documentation>A URI identifier for a standard service.</xs:documentation>
      <xs:documentation>This provides a unique way to refer to a service specification
 standard, such as a Simple Image Access service. The use of an IVOA identifier here
 implies that a VOResource description of the standard is registered and accessible.</
xs:documentation>
    </xs:annotation>
  </xs:attribute>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Complex Type `vr:Interface`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/VOResource/v1.0 |
| Annotations | A description of a service interface.<br><br>Since this type is abstract, one must use an Interface subclass to describe an actual interface.<br><br>Additional interface subtypes (beyond WebService and WebBrowser) are defined in the VODataService schema. |

| | |
|---|---|
| Diagram |  |
| Properties | abstract: `true` |
| Used by | Element: vr:Capability/interface<br>Complex Types: vr:WebBrowser, vr:WebService |
| Model | accessURL+ , securityMethod* |
| Children | accessURL, securityMethod |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **role** | xs:NMTOKEN | | | optional |
| | A tag name the identifies the role the interface plays in the particular capability. If the value is equal to "std" or begins with "std:", then the interface refers to a standard interface defined by the standard referred to by the capability's standardID attribute.<br><br>For an interface complying with some registered standard (i.e. has a legal standardID), the role can be match against interface roles enumerated in standard resource record. The interface descriptions in the standard record can provide default descriptions so that such details need not be repeated here. | | | |
| **version** | xs:string | | 1.0 | optional |
| | The version of a standard interface specification that this interface complies with. When the interface is provided in the context of a Capability element, then the standard being refered to is the one identified by the Capability's standardID element. If the standardID is not provided, the meaning of this attribute is undefined. | | | |

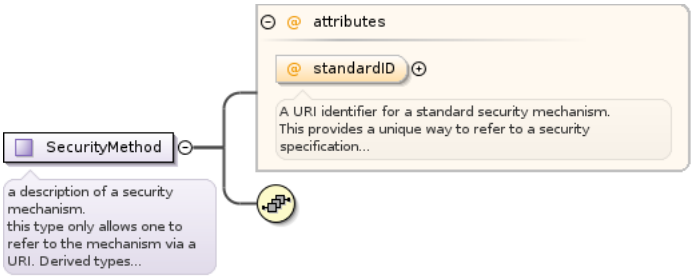
Source

```
<xs:complexType name="Interface" abstract="true">
  <xs:annotation>
    <xs:documentation>A description of a service interface.</xs:documentation>
    <xs:documentation>Since this type is abstract, one must use an Interface subclass to
 describe an actual interface.</xs:documentation>
    <xs:documentation>Additional interface subtypes (beyond WebService and WebBrowser) are
 defined in the VODataService schema.</xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="accessURL" type="vr:AccessURL" minOccurs="1" maxOccurs="unbounded">
      <xs:annotation>
        <xs:documentation>The URL (or base URL) that a client uses to access the service.
 How this URL is to be interpreted and used depends on the specific Interface subclass</
xs:documentation>
        <xs:documentation>When more than one URL is given, each represents an alternative
 (i.e. mirror) endpoint whose behavior is identical to all the other accessURLs listed.</
xs:documentation>
        <xs:documentation>Editor's note: this element assumes that all registered services
 are inherently web based.</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="securityMethod" type="vr:SecurityMethod" minOccurs="0"
 maxOccurs="unbounded">
```

```
      <xs:annotation>
        <xs:documentation>the mechanism the client must employ to gain secure access to
 the service.</xs:documentation>
        <xs:documentation>when more than one method is listed, each one must be employed
 to gain access.</xs:documentation>
      </xs:annotation>
    </xs:element>
  </xs:sequence>
  <xs:attribute name="version" type="xs:string" default="1.0">
    <xs:annotation>
      <xs:documentation>The version of a standard interface specification that this
 interface complies with. When the interface is provided in the context of a Capability
 element, then the standard being refered to is the one identified by the Capability's
 standardID element. If the standardID is not provided, the meaning of this attribute is
 undefined.</xs:documentation>
    </xs:annotation>
  </xs:attribute>
  <xs:attribute name="role" type="xs:NMTOKEN">
    <xs:annotation>
      <xs:documentation>A tag name the identifies the role the interface plays in the
 particular capability. If the value is equal to "std" or begins with "std:", then the
 interface refers to a standard interface defined by the standard referred to by the
 capability's standardID attribute.</xs:documentation>
      <xs:documentation>For an interface complying with some registered standard (i.e. has
 a legal standardID), the role can be match against interface roles enumerated in standard
 resource record. The interface descriptions in the standard record can provide default
 descriptions so that such details need not be repeated here.</xs:documentation>
    </xs:annotation>
  </xs:attribute>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Complex Type `vr:SecurityMethod`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/VOResource/v1.0 |
| Annotations | a description of a security mechanism.<br><br>this type only allows one to refer to the mechanism via a URI. Derived types would allow for more metadata. |
| Diagram |  |
| Used by | Element vr:Interface/securityMethod |
| Model | |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **standardID** | xs:anyURI | | | optional |
| | A URI identifier for a standard security mechanism.<br><br>This provides a unique way to refer to a security specification standard. The use of an IVOA identifier here implies that a VOResource description of the standard is registered and accessible. | | | |

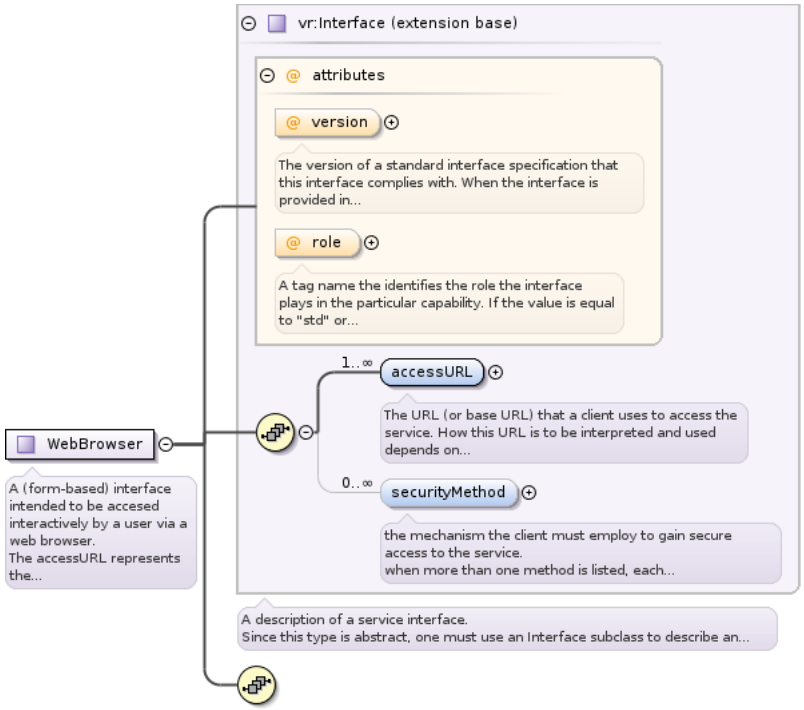
Source

```
<xs:complexType name="SecurityMethod">
  <xs:annotation>
    <xs:documentation>a description of a security mechanism.</xs:documentation>
    <xs:documentation>this type only allows one to refer to the mechanism via a URI.
 Derived types would allow for more metadata.</xs:documentation>
  </xs:annotation>
  <xs:sequence/>
  <xs:attribute name="standardID" type="xs:anyURI">
    <xs:annotation>
      <xs:documentation>A URI identifier for a standard security mechanism.</
xs:documentation>
      <xs:documentation>This provides a unique way to refer to a security specification
 standard. The use of an IVOA identifier here implies that a VOResource description of the
 standard is registered and accessible.</xs:documentation>
```

```
    </xs:annotation>
  </xs:attribute>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Complex Type `vr:WebBrowser`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/VOResource/v1.0 |
| Annotations | A (form-based) interface intended to be accesed interactively by a user via a web browser.<br><br>The accessURL represents the URL of the web form itself. |
| Diagram |  |
| Type | extension of vr:Interface |
| Type hierarchy | • vr:Interface<br>  • vr:WebBrowser |
| Model | accessURL+ , securityMethod* |
| Children | accessURL, securityMethod |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **role** | xs:NMTOKEN | | | optional |
| | A tag name the identifies the role the interface plays in the particular capability. If the value is equal to "std" or begins with "std:", then the interface refers to a standard interface defined by the standard referred to by the capability's standardID attribute.<br><br>For an interface complying with some registered standard (i.e. has a legal standardID), the role can be match against interface roles enumerated in standard resource record. The interface descriptions in the standard record can provide default descriptions so that such details need not be repeated here. | | | |
| **version** | xs:string | | 1.0 | optional |
| | The version of a standard interface specification that this interface complies with. When the interface is provided in the context of a Capability element, then the standard being refered to is the one identified by the Capability's standardID element. If the standardID is not provided, the meaning of this attribute is undefined. | | | |

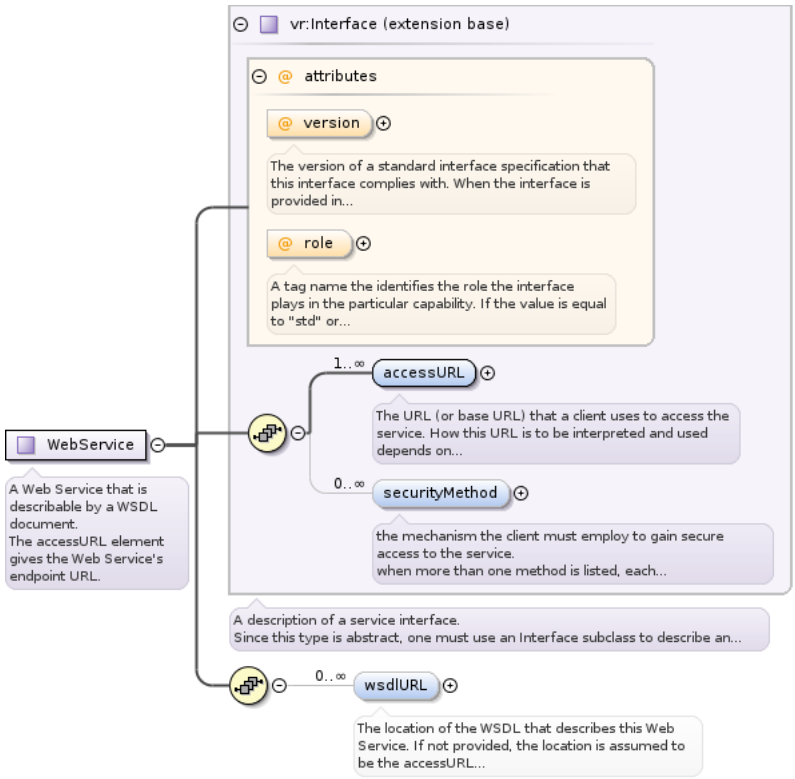
Source

```
<xs:complexType name="WebBrowser">
  <xs:annotation>
```

```
    <xs:documentation>A (form-based) interface intended to be accesed interactively by a
 user via a web browser.</xs:documentation>
    <xs:documentation>The accessURL represents the URL of the web form itself.</
xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="vr:Interface">
      <xs:sequence/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Complex Type `vr:WebService`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/VOResource/v1.0 |
| Annotations | A Web Service that is describable by a WSDL document.<br><br>The accessURL element gives the Web Service's endpoint URL. |
| Diagram |  |
| Type | extension of vr:Interface |
| Type hierarchy | • vr:Interface<br>  • vr:WebService |
| Model | accessURL+ , securityMethod* , wsdlURL* |
| Children | accessURL, securityMethod, wsdlURL |

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **role** | xs:NMTOKEN | | | optional |
| | A tag name the identifies the role the interface plays in the particular capability. If the value is equal to "std" or begins with "std:", then the interface refers to a standard interface defined by the standard referred to by the capability's standardID attribute.<br><br>For an interface complying with some registered standard (i.e. has a legal standardID), the role can be match against interface roles enumerated in standard resource record. The interface descriptions in the standard record can provide default descriptions so that such details need not be repeated here. | | | |
| **version** | xs:string | | 1.0 | optional |

| | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | | The version of a standard interface specification that this interface complies with. When the interface is provided in the context of a Capability element, then the standard being refered to is the one identified by the Capability's standardID element. If the standardID is not provided, the meaning of this attribute is undefined. | | | |

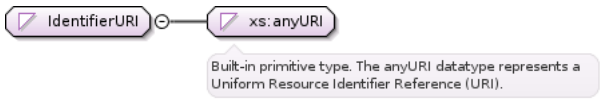
Source

```
<xs:complexType name="WebService">
  <xs:annotation>
    <xs:documentation>A Web Service that is describable by a WSDL document.</
xs:documentation>
    <xs:documentation>The accessURL element gives the Web Service's endpoint URL.</
xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="vr:Interface">
      <xs:sequence>
        <xs:element name="wsdlURL" type="xs:anyURI" minOccurs="0" maxOccurs="unbounded">
          <xs:annotation>
            <xs:documentation>The location of the WSDL that describes this Web Service.
 If not provided, the location is assumed to be the accessURL with "?wsdl" appended.</
xs:documentation>
            <xs:documentation>Multiple occurances should represent mirror copies of the
 same WSDL file.</xs:documentation>
          </xs:annotation>
        </xs:element>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

Schema location: http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd

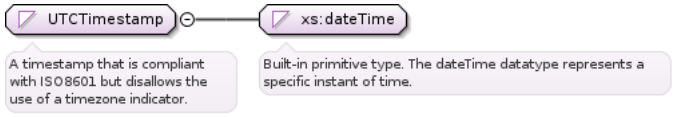
# Simple Type(s)

## Simple Type `vr:IdentifierURI`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/VOResource/v1.0 |
| Diagram |   |
| Type | restriction of xs:anyURI |
| Facets | pattern: `ivo://[\w\d][\w\d\-_\.!~\*'\(\)\+=]{2,}(/[\w\d\-_\.!~\*'\(\)\+=]+(/[\w\d\-_\.!~\*'\(\)\+=]+)*)?` |
| Used by | Attributes: vr:ResourceName/@ivo-id, vr:Validation/@validatedBy<br>Elements: CurationMetadataType/collection-id, vr:Resource/identifier |
| Source | see below |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

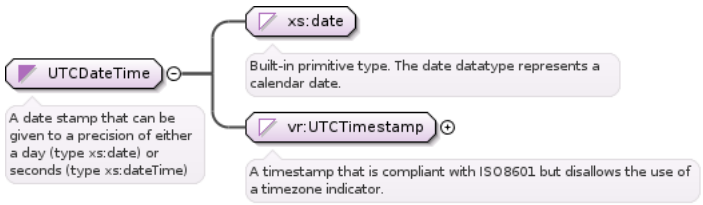
```
<xs:simpleType name="IdentifierURI">
  <xs:restriction base="xs:anyURI">
    <xs:pattern value="ivo://[\w\d][\w\d\-_\.!~\*'\(\)\+=]{2,}(/[\w\d\-_\.!~\*'\(\)\+=]+(/
[\w\d\-_\.!~\*'\(\)\+=]+)*)?"/>
  </xs:restriction>
</xs:simpleType>
```

## Simple Type `vr:UTCTimestamp`

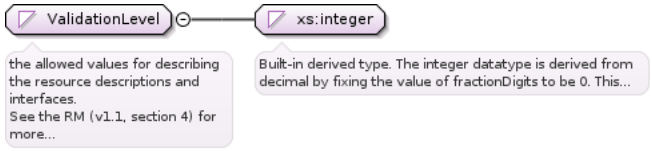
| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/VOResource/v1.0 |
| Annotations | A timestamp that is compliant with ISO8601 but disallows the use of a timezone indicator. |
| Diagram |   |
| Type | restriction of xs:dateTime |

| | | |
|---|---|---|
| Facets | pattern | \d{4}-\d\d-\d\dT\d\d:<br>\d\d:\d\d(\.\d+)? |
| Source | <xs:simpleType name="UTCTimestamp"><br><xs:annotation><br><xs:documentation>A timestamp that is compliant with ISO8601 but disallows the use of a timezone indicator.</xs:documentation><br></xs:annotation><br><xs:restriction base="xs:dateTime"><br><xs:pattern value="\d{4}-\d\d-\d\dT\d\d:\d\d:\d\d(\.\d+)?"/><br></xs:restriction><br></xs:simpleType> | |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd | |

## Simple Type vr:UTCDateTime

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/VOResource/v1.0 |
| Annotations | A date stamp that can be given to a precision of either a day (type xs:date) or seconds (type xs:dateTime) |
| Diagram |  |
| Type | union of(xs:date, vr:UTCTimestamp) |
| Used by | Complex Type vr:Date |
| Source | <xs:simpleType name="UTCDateTime"><br><xs:annotation><br><xs:documentation>A date stamp that can be given to a precision of either a day (type xs:date) or seconds (type xs:dateTime)</xs:documentation><br></xs:annotation><br><xs:union memberTypes="xs:date vr:UTCTimestamp"/><br></xs:simpleType> |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Simple Type vr:ValidationLevel

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/VOResource/v1.0 |
| Annotations | the allowed values for describing the resource descriptions and interfaces.<br><br>See the RM (v1.1, section 4) for more guidance on the use of these values. |
| Diagram |  |
| Type | restriction of xs:integer |
| Facets | whiteSpace: collapse<br>enumeration: 0 — The resource has a description that is stored in a registry. This level does not imply a compliant description.<br>enumeration: 1 — In addition to meeting the level 0 definition, the resource description conforms syntactically to this standard and to the encoding scheme used.<br>enumeration: 2 — In addition to meeting the level 1 definition, the resource description refers to an existing resource that |

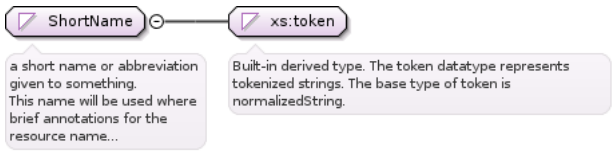
| | | | |
|---|---|---|---|
| | | | has demonstrated to be functionally compliant. |
| | enumeration | 3 | In addition to meeting the level 2 definition, the resource description has been inspected by a human and judged to comply semantically to this standard as well as meeting any additional minimum quality criteria (e.g., providing values for important but non-required metadata) set by the human inspector. |
| | enumeration | 4 | In addition to meeting the level 3 definition, the resource description meets additional quality criteria set by the human inspector and is therefore considered an excellent description of the resource. Consequently, the resource is expected to be operate well as part of a VO application or research study. |
| Used by | Complex Type | vr:Validation | |

Source

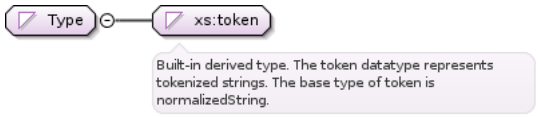
```
<xs:simpleType name="ValidationLevel">
  <xs:annotation>
    <xs:documentation>the allowed values for describing the resource descriptions and
 interfaces.</xs:documentation>
    <xs:documentation>See the RM (v1.1, section 4) for more guidance on the use of these
 values.</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:integer">
    <xs:whiteSpace value="collapse"/>
    <xs:enumeration value="0">
      <xs:annotation>
        <xs:documentation>The resource has a description that is stored in a registry.
 This level does not imply a compliant description.</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="1">
      <xs:annotation>
        <xs:documentation>In addition to meeting the level 0 definition, the resource
 description conforms syntactically to this standard and to the encoding scheme used.</
xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="2">
      <xs:annotation>
        <xs:documentation>In addition to meeting the level 1 definition, the resource
 description refers to an existing resource that has demonstrated to be functionally
 compliant.</xs:documentation>
        <xs:documentation>When the resource is a service, it is consider to exist and
 functionally compliant if use of the service accessURL responds without error when
 used as intended by the resource. If the service is a standard one, it must also
 demonstrate the response is syntactically compliant with the service standard in order
 to be considered functionally compliant. If the resource is not a service, then the
 ReferenceURL must be shown to return a document without error.</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="3">
      <xs:annotation>
        <xs:documentation>In addition to meeting the level 2 definition, the resource
 description has been inspected by a human and judged to comply semantically to
 this standard as well as meeting any additional minimum quality criteria (e.g.,
 providing values for important but non-required metadata) set by the human inspector.</
xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="4">
      <xs:annotation>
        <xs:documentation>In addition to meeting the level 3 definition, the resource
 description meets additional quality criteria set by the human inspector and is
 therefore considered an excellent description of the resource. Consequently, the
 resource is expected to be operate well as part of a VO application or research study.</
xs:documentation>
      </xs:annotation>
    </xs:enumeration>
  </xs:restriction>
```

| | |
|---|---|
| | </xs:simpleType> |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Simple Type vr:ShortName

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/VOResource/v1.0 |
| Annotations | a short name or abbreviation given to something.<br><br>This name will be used where brief annotations for the resource name are required. Applications may use to refer to this resource in a compact display.<br><br>One word or a few letters is recommended. No more than sixteen characters are allowed. |
| Diagram |  |
| Type | restriction of xs:token |
| Facets | maxLength 16 |
| Used by | Element vr:Resource/shortName |
| Source | <xs:simpleType name="ShortName"><br><xs:annotation><br><xs:documentation>a short name or abbreviation given to something.</xs:documentation><br><xs:documentation>This name will be used where brief annotations for the resource name are required. Applications may use to refer to this resource in a compact display.</xs:documentation><br><xs:documentation>One word or a few letters is recommended. No more than sixteen characters are allowed.</xs:documentation><br></xs:annotation><br><xs:restriction base="xs:token"><br><xs:maxLength value="16"/><br></xs:restriction><br></xs:simpleType> |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Simple Type vr:Type

| | | | |
|---|---|---|---|
| Namespace | http://www.ivoa.net/xml/VOResource/v1.0 | | |
| Diagram |  | | |
| Type | restriction of xs:token | | |
| Facets | enumeration | Other | resource that does not fall into any of the category names currently defined. |
| | enumeration | Archive | Collection of pointed observations |
| | enumeration | Bibliography | Collection of bibliographic reference, abstracts, and publications |
| | enumeration | Catalog | Collection of derived data, primarily in tabular form |
| | enumeration | Journal | Collection of scholarly publications under common editorial policy |
| | enumeration | Library | Collection of published materials (journals, books, etc.) |
| | enumeration | Simulation | Theoretical simulation or model |
| | enumeration | Survey | Collection of observations covering substantial and contiguous areas of the sky |
| | enumeration | Transformation | A service that transforms data |

| | | | |
|---|---|---|---|
| enumeration | Education | Collection of materials appropriate for educational use, such as teaching resources, curricula, etc. |
| enumeration | Outreach | Collection of materials appropriate for public outreach, such as press releases and photo galleries |
| enumeration | EPOResource | Collection of materials that may be suitable for EPO products but which are not in final product form, as in Type Outreach or Type Education. EPOResource would apply, e.g., to archives with easily accessed preview images or to surveys with easy-to-use images. |
| enumeration | Animation | Animation clips of astronomical phenomena |
| enumeration | Artwork | Artists' renderings of astronomical phenomena or objects |
| enumeration | Background | Background information on astronomical phenomena or objects |
| enumeration | BasicData | Compilations of basic astronomical facts about objects, such as approximate distance or membership in constellation. |
| enumeration | Historical | Historical information about astronomical objects |
| enumeration | Photographic | Publication-quality photographs of astronomical objects |
| enumeration | Press | Press releases about astronomical objects |
| enumeration | Organisation | An organization that is a publisher or curator of other resources. |
| enumeration | Project | A project that is a publisher or curator of other resources |
| enumeration | Registry | a query service for which response is a structured description of resources. |

Used by

| | |
|---|---|
| Element | vr:Content/type |

Source

```
<xs:simpleType name="Type">
  <xs:restriction base="xs:token">
    <xs:enumeration value="Other">
      <xs:annotation>
        <xs:documentation>resource that does not fall into any of the category names
 currently defined.</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="Archive">
      <xs:annotation>
        <xs:documentation>Collection of pointed observations</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="Bibliography">
      <xs:annotation>
        <xs:documentation>Collection of bibliographic reference, abstracts, and
 publications</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="Catalog">
      <xs:annotation>
        <xs:documentation>Collection of derived data, primarily in tabular form</
xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="Journal">
      <xs:annotation>
        <xs:documentation>Collection of scholarly publications under common editorial
 policy</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="Library">
      <xs:annotation>
        <xs:documentation>Collection of published materials (journals, books, etc.)</
xs:documentation>
      </xs:annotation>
```

```
    </xs:enumeration>
    <xs:enumeration value="Simulation">
      <xs:annotation>
        <xs:documentation>Theoretical simulation or model</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="Survey">
      <xs:annotation>
        <xs:documentation>Collection of observations covering substantial and contiguous
 areas of the sky</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="Transformation">
      <xs:annotation>
        <xs:documentation>A service that transforms data</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="Education">
      <xs:annotation>
        <xs:documentation>Collection of materials appropriate for educational use, such as
 teaching resources, curricula, etc.</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="Outreach">
      <xs:annotation>
        <xs:documentation>Collection of materials appropriate for public outreach, such as
 press releases and photo galleries</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="EPOResource">
      <xs:annotation>
        <xs:documentation>Collection of materials that may be suitable for EPO products
 but which are not in final product form, as in Type Outreach or Type Education.
 EPOResource would apply, e.g., to archives with easily accessed preview images or to
 surveys with easy-to-use images.</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="Animation">
      <xs:annotation>
        <xs:documentation>Animation clips of astronomical phenomena</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="Artwork">
      <xs:annotation>
        <xs:documentation>Artists' renderings of astronomical phenomena or objects</
xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="Background">
      <xs:annotation>
        <xs:documentation>Background information on astronomical phenomena or objects</
xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="BasicData">
      <xs:annotation>
        <xs:documentation>Compilations of basic astronomical facts about objects, such as
 approximate distance or membership in constellation.</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="Historical">
      <xs:annotation>
        <xs:documentation>Historical information about astronomical objects</
xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="Photographic">
      <xs:annotation>
        <xs:documentation>Publication-quality photographs of astronomical objects</
xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="Press">
      <xs:annotation>
        <xs:documentation>Press releases about astronomical objects</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="Organisation">
      <xs:annotation>
        <xs:documentation>An organization that is a publisher or curator of other
 resources.</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
```

```
    <xs:enumeration value="Project">
      <xs:annotation>
        <xs:documentation>A project that is a publisher or curator of other resources</
xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="Registry">
      <xs:annotation>
        <xs:documentation>a query service for which response is a structured description
 of resources.</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
  </xs:restriction>
</xs:simpleType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Simple Type `vr:ContentLevel`

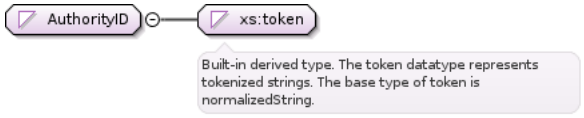
| | | | |
|---|---|---|---|
| Namespace | http://www.ivoa.net/xml/VOResource/v1.0 | | |
| Diagram |  | | |
| Type | restriction of xs:token | | |
| Facets | enumeration | `General` | Resource provides information appropriate for all users |
| | enumeration | `Elementary Education` | Resource provides information appropriate for use in elementary education (e.g. approximate ages 6-11) |
| | enumeration | `Middle School Education` | Resource provides information appropriate for use in middle school education (e.g. approximate ages 11-14) |
| | enumeration | `Secondary Education` | Resource provides information appropriate for use in elementary education (e.g. approximate ages 14-18) |
| | enumeration | `Community College` | Resource provides information appropriate for use in community/junior college or early university education. |
| | enumeration | `University` | Resource provides information appropriate for use in university education |
| | enumeration | `Research` | Resource provides information appropriate for supporting scientific research. |
| | enumeration | `Amateur` | Resource provides information of interest to amateur astronomers. |
| | enumeration | `Informal Education` | Resource provides information appropriate for education at museums, planetariums, and other centers of informal learning. |
| Used by | Element | vr:Content/contentLevel | |
| Source | | | |

```
<xs:simpleType name="ContentLevel">
  <xs:restriction base="xs:token">
    <xs:enumeration value="General">
      <xs:annotation>
        <xs:documentation>Resource provides information appropriate for all users</
xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="Elementary Education">
      <xs:annotation>
        <xs:documentation>Resource provides information appropriate for use in elementary
 education (e.g. approximate ages 6-11)</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="Middle School Education">
      <xs:annotation>
        <xs:documentation>Resource provides information appropriate for use in middle
 school education (e.g. approximate ages 11-14)</xs:documentation>
```

```
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="Secondary Education">
      <xs:annotation>
        <xs:documentation>Resource provides information appropriate for use in elementary
 education (e.g. approximate ages 14-18)</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="Community College">
      <xs:annotation>
        <xs:documentation>Resource provides information appropriate for use in community/
junior college or early university education.</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="University">
      <xs:annotation>
        <xs:documentation>Resource provides information appropriate for use in university
 education</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="Research">
      <xs:annotation>
        <xs:documentation>Resource provides information appropriate for supporting
 scientific research.</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="Amateur">
      <xs:annotation>
        <xs:documentation>Resource provides information of interest to amateur
 astronomers.</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="Informal Education">
      <xs:annotation>
        <xs:documentation>Resource provides information appropriate for education at
 museums, planetariums, and other centers of informal learning.</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
  </xs:restriction>
</xs:simpleType>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Simple Type `vr:AuthorityID`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/VOResource/v1.0 |
| Diagram |  |
| Type | restriction of xs:token |
| Facets | pattern `[\w\d][\w\d\-_\.!~\*'\(\)\+=]{2,}` |
| Source | |

```
<xs:simpleType name="AuthorityID">
  <xs:restriction base="xs:token">
    <xs:pattern value="[\w\d][\w\d\-_\.!~\*'\(\)\+=]{2,}"/>
  </xs:restriction>
</xs:simpleType>
```

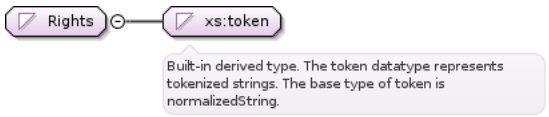
| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Simple Type `vr:ResourceKey`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/VOResource/v1.0 |
| Diagram |  |
| Type | restriction of xs:token |
| Facets | pattern `[\w\d\-_\.!~\*'\(\)\+=]+(/[\w\d\-_\.!~\*'\(\)\+=]+)*` |

| | |
|---|---|
| Source | <xs:simpleType name="ResourceKey"><br><xs:restriction base="xs:token"><br><xs:pattern value="[\w\d\-_\.!~*'\(\)\+=]+(/[\w\d\-_\.!~*'\(\)\+=]+)*"/><br></xs:restriction><br></xs:simpleType> |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

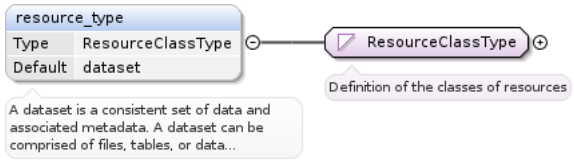
### Simple Type `vr:Rights`

| | |
|---|---|
| Namespace | http://www.ivoa.net/xml/VOResource/v1.0 |
| Diagram |  |
| Type | restriction of xs:token |
| Facets | enumeration `public` — unrestricted, public access is allowed without authentication.<br>enumeration `secure` — authenticated, public access is allowed.<br>enumeration `proprietary` — only proprietary access is allowed with authentication. |
| Used by | Element vr:Service/rights |
| Source | <xs:simpleType name="Rights"><br><xs:restriction base="xs:token"><br><xs:enumeration value="public"><br><xs:annotation><br><xs:documentation>unrestricted, public access is allowed without authentication.</xs:documentation><br></xs:annotation><br></xs:enumeration><br><xs:enumeration value="secure"><br><xs:annotation><br><xs:documentation>authenticated, public access is allowed.</xs:documentation><br></xs:annotation><br></xs:enumeration><br><xs:enumeration value="proprietary"><br><xs:annotation><br><xs:documentation>only proprietary access is allowed with authentication.</xs:documentation><br></xs:annotation><br></xs:enumeration><br></xs:restriction><br></xs:simpleType> |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Namespace: ""

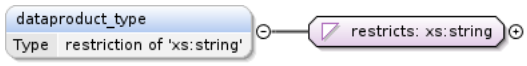
## Element(s)

### Element `EPNCoreType / resource_type`

| | |
|---|---|
| Namespace | No namespace |
| Annotations | A dataset is a consistent set of data and associated metadata. A dataset can be comprised of files, tables, or data computed on the fly.<br>A granule is the smallest element reachable in a dataset: either a file, a group of associated files, a table entry, or some kind of data computed on the fly. |
| Diagram |  |
| Type | ResourceClassType |
| Properties | content: `simple`<br>minOccurs: `0` |

| | | |
|---|---|---|
| | maxOccurs: | 1 |
| | default: | dataset |
| Facets | enumeration | dataset |
| | enumeration | granule |
| Source | <xs:element name="resource_type" type="ResourceClassType" minOccurs="0" maxOccurs="1" default="dataset"><br><xs:annotation><br><xs:documentation>A dataset is a consistent set of data and associated metadata. A dataset can be comprised of files, tables, or data computed on the fly. A granule is the smallest element reachable in a dataset: either a file, a group of associated files, a table entry, or some kind of data computed on the fly.</xs:documentation><br></xs:annotation><br></xs:element> | |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd | |

## Element EPNCoreType / dataproduct_type

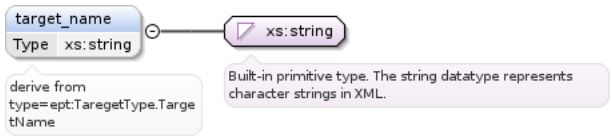
| | | | |
|---|---|---|---|
| Namespace | No namespace | | |
| Diagram |  | | |
| Type | restriction of xs:string | | |
| Properties | content: | simple | |
| | minOccurs: | 0 | |
| | maxOccurs: | unbounded | |
| Facets | enumeration | image | associated scalar fields with two spatial axes, e.g., images with multiple color planes, from multichannel cameras for example. Maps of planetary surfaces are considered as images. |
| | enumeration | spectrum | data product which spectral coverage is the primary attribute, e.g., a set of spectra. |
| | enumeration | dynamic_spectrum | consecutive spectral measurements through time, organized as a time series. |
| | enumeration | spectral_cube | set of spectral measurements with 1 or 2D spatial coverage, e.g., imaging spectroscopy. The choice between Image and spectral_cube is related to the characteristics of the instrument.. |
| | enumeration | profile | scalar or vectorial measurements along 1 spatial dimension, e.g., atmospheric profiles, atmospheric paths, sub-surface profiles… |
| | enumeration | volume | other measurements with 3 spatial dimensions, e.g., internal or atmospheric structures. |
| | enumeration | movie | sets of chronological 2D spatial measurements |
| | enumeration | cube | multidimensional data with 3 or more axes, e.g., all that is not described by other 3D data types such as spectral cubes or volume. |
| | enumeration | time_series | measurements organized primarily as a function of time (with exception of dynamical spectra). A Spacecraft dust detector measurement is a typical example of a time series. |
| | enumeration | catalog | can be a list of events, a catalog of object parameters, a list of features.... E.g., a list of asteroid properties. Can also be a single element. |
| | enumeration | spatial_vector | list of summit coordinates defining a vector, e.g., vector information from a GIS, spatial footprints… |
| Source | <xs:element name="dataproduct_type" maxOccurs="unbounded" minOccurs="0"><br><xs:simpleType> | | |

```
    <xs:restriction base="xs:string">
      <xs:enumeration value="image">
        <xs:annotation>
          <xs:documentation>associated scalar fields with two spatial axes, e.g., images
 with multiple color planes, from multichannel cameras for example. Maps of planetary
 surfaces are considered as images.</xs:documentation>
        </xs:annotation>
      </xs:enumeration>
      <xs:enumeration value="spectrum">
        <xs:annotation>
          <xs:documentation>data product which spectral coverage is the primary attribute,
e.g., a set of spectra.</xs:documentation>
        </xs:annotation>
      </xs:enumeration>
      <xs:enumeration value="dynamic_spectrum">
        <xs:annotation>
          <xs:documentation>consecutive spectral measurements through time, organized as a
 time series.</xs:documentation>
        </xs:annotation>
      </xs:enumeration>
      <xs:enumeration value="spectral_cube">
        <xs:annotation>
          <xs:documentation>set of spectral measurements with 1 or 2D spatial coverage,
e.g., imaging spectroscopy. The choice between Image and spectral_cube is related to the
 characteristics of the instrument..</xs:documentation>
        </xs:annotation>
      </xs:enumeration>
      <xs:enumeration value="profile">
        <xs:annotation>
          <xs:documentation>scalar or vectorial measurements along 1 spatial dimension,
e.g., atmospheric profiles, atmospheric paths, sub-surface profiles…</xs:documentation>
        </xs:annotation>
      </xs:enumeration>
      <xs:enumeration value="volume">
        <xs:annotation>
          <xs:documentation>other measurements with 3 spatial dimensions, e.g., internal
 or atmospheric structures.</xs:documentation>
        </xs:annotation>
      </xs:enumeration>
      <xs:enumeration value="movie">
        <xs:annotation>
          <xs:documentation>sets of chronological 2D spatial measurements</
xs:documentation>
        </xs:annotation>
      </xs:enumeration>
      <xs:enumeration value="cube">
        <xs:annotation>
          <xs:documentation>multidimensional data with 3 or more axes, e.g., all that is
 not described by other 3D data types such as spectral cubes or volume.</xs:documentation>
        </xs:annotation>
      </xs:enumeration>
      <xs:enumeration value="time_series">
        <xs:annotation>
          <xs:documentation>measurements organized primarily as a function of time (with
 exception of dynamical spectra). A Spacecraft dust detector measurement is a typical
 example of a time series.</xs:documentation>
        </xs:annotation>
      </xs:enumeration>
      <xs:enumeration value="catalog">
        <xs:annotation>
          <xs:documentation>can be a list of events, a catalog of object parameters, a
 list of features.... E.g., a list of asteroid properties. Can also be a single element.</
xs:documentation>
        </xs:annotation>
      </xs:enumeration>
      <xs:enumeration value="spatial_vector">
        <xs:annotation>
          <xs:documentation>list of summit coordinates defining a vector, e.g., vector
 information from a GIS, spatial footprints…</xs:documentation>
        </xs:annotation>
      </xs:enumeration>
    </xs:restriction>
  </xs:simpleType>
</xs:element>
```

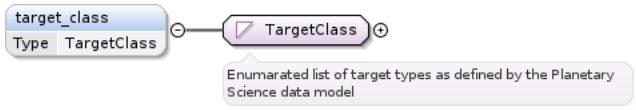
| | |
|---|---|
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element EPNCoreType / target_name

| | |
|---|---|
| Namespace | No namespace |
| Annotations | derive from type=ept:TaregetType.TargetName |

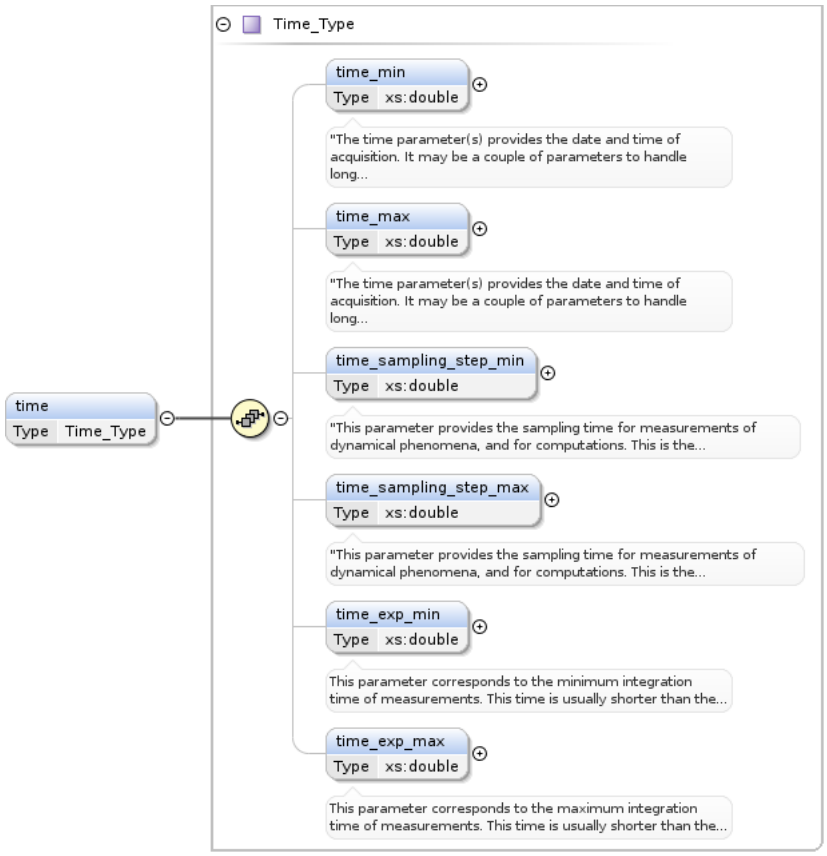
| | |
|---|---|
| Diagram |  |
| Type | xs:string |
| Properties | content: simple<br>minOccurs: 0<br>maxOccurs: unbounded |
| Source | `<xs:element name="target_name" maxOccurs="unbounded" minOccurs="0" type="xs:string">`<br>`  <xs:annotation>`<br>`  <xs:documentation>derive from type=ept:TaregetType.TargetName</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element EPNCoreType / target_class

| | |
|---|---|
| Namespace | No namespace |
| Diagram |  |
| Type | TargetClass |
| Properties | content: simple<br>minOccurs: 0<br>maxOccurs: unbounded |
| Facets | enumeration asteroid<br>enumeration comet<br>enumeration dwarf_planet<br>enumeration exoplanet<br>enumeration interplanetary_medium<br>enumeration planet<br>enumeration ring<br>enumeration sample<br>enumeration satellite<br>enumeration sky<br>enumeration spacecraft<br>enumeration spacejunk<br>enumeration star |
| Source | `<xs:element maxOccurs="unbounded" minOccurs="0" name="target_class" type="TargetClass">`<br>`</xs:element>` |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

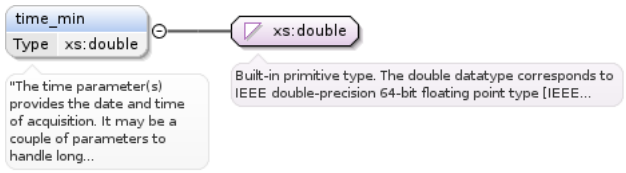
## Element EPNCoreType / time

| | |
|---|---|
| Namespace | No namespace |

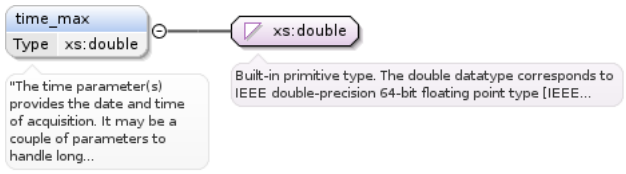
| | |
|---|---|
| Diagram |  |
| Type | Time_Type |
| Properties | content: complex<br>minOccurs: 0<br>maxOccurs: unbounded |
| Model | time_min{0,1} , time_max{0,1} , time_sampling_step_min{0,1} , time_sampling_step_max{0,1} , time_exp_min{0,1} , time_exp_max{0,1} |
| Children | time_exp_max, time_exp_min, time_max, time_min, time_sampling_step_max, time_sampling_step_min |
| Instance | <time><br>  <time_min>{0,1}</time_min><br>  <time_max>{0,1}</time_max><br>  <time_sampling_step_min>{0,1}</time_sampling_step_min><br>  <time_sampling_step_max>{0,1}</time_sampling_step_max><br>  <time_exp_min>{0,1}</time_exp_min><br>  <time_exp_max>{0,1}</time_exp_max><br></time> |
| Source | <xs:element maxOccurs="unbounded" minOccurs="0" name="time" type="Time_Type"><br></xs:element> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element Time_Type / time_min

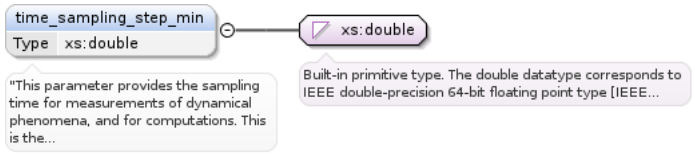
| | |
|---|---|
| Namespace | No namespace |
| Annotations | "The time parameter(s) provides the date and time of acquisition. It may be a couple of parameters to handle long periods in some datasets.<br>This parameter is provided in Julian days, expressed as a double precision float. Although ObsCore uses Modified JD, EPNCore uses JD to avoid ambiguity with time origin. With double precision floats, the accuracy is on the order of 1 ms.<br>Whenever time is defined by a single parameter, both time_min and time_max contain the same " |

| | |
|---|---|
| Diagram |  |
| Type | xs:double |
| Properties | content: simple<br>minOccurs: 0<br>maxOccurs: 1 |
| Source | <xs:element name="time_min" minOccurs="0" maxOccurs="1" type="xs:double"><br><xs:annotation><br><xs:documentation>"The time parameter(s) provides the date and time of acquisition. It may be a couple of parameters to handle long periods in some datasets. This parameter is provided in Julian days, expressed as a double precision float. Although ObsCore uses Modified JD, EPNCore uses JD to avoid ambiguity with time origin. With double precision floats, the accuracy is on the order of 1 ms. Whenever time is defined by a single parameter, both time_min and time_max contain the same "</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element Time_Type / time_max

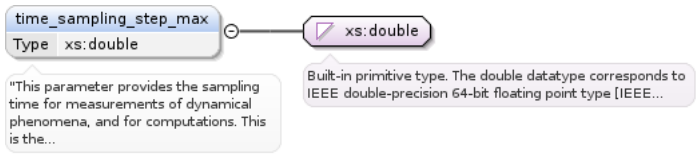
| | |
|---|---|
| Namespace | No namespace |
| Annotations | "The time parameter(s) provides the date and time of acquisition. It may be a couple of parameters to handle long periods in some datasets.<br>This parameter is provided in Julian days, expressed as a double precision float. Although ObsCore uses Modified JD, EPNCore uses JD to avoid ambiguity with time origin. With double precision floats, the accuracy is on the order of 1 ms.<br>Whenever time is defined by a single parameter, both t_min and t_max contain the same " |
| Diagram |  |
| Type | xs:double |
| Properties | content: simple<br>minOccurs: 0<br>maxOccurs: 1 |
| Source | <xs:element name="time_max" minOccurs="0" maxOccurs="1" type="xs:double"><br><xs:annotation><br><xs:documentation>"The time parameter(s) provides the date and time of acquisition. It may be a couple of parameters to handle long periods in some datasets. This parameter is provided in Julian days, expressed as a double precision float. Although ObsCore uses Modified JD, EPNCore uses JD to avoid ambiguity with time origin. With double precision floats, the accuracy is on the order of 1 ms. Whenever time is defined by a single parameter, both t_min and t_max contain the same "</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element Time_Type / time_sampling_step_min

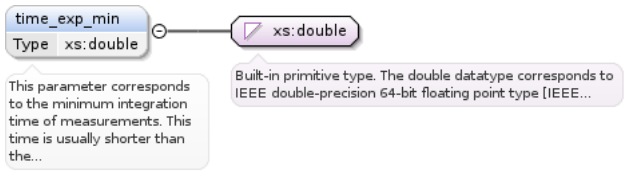
| | |
|---|---|
| Namespace | No namespace |
| Annotations | "This parameter provides the sampling time for measurements of dynamical phenomena, and for computations. This is the time between 2 successive measurements/data. This may be a query parameter e.g. for ephemeris computations. expressed in second " |
| Diagram |  |

| | |
|---|---|
| Type | xs:double |
| Properties | content: simple<br>minOccurs: 0<br>maxOccurs: 1 |
| Source | <xs:element minOccurs="0" maxOccurs="1" name="time_sampling_step_min" type="xs:double"><br><xs:annotation><br><xs:documentation>"This parameter provides the sampling time for measurements of dynamical phenomena, and for computations. This is the time between 2 successive measurements/data. This may be a query parameter e.g. for ephemeris computations. expressed in second "</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element Time_Type / time_sampling_step_max

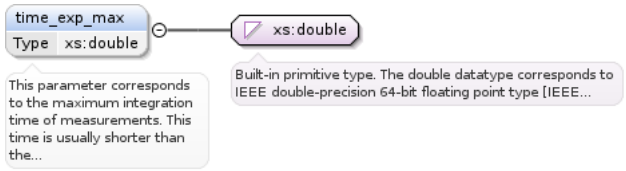
| | |
|---|---|
| Namespace | No namespace |
| Annotations | "This parameter provides the sampling time for measurements of dynamical phenomena, and for computations. This is the time between 2 successive measurements/data. This may be a query parameter e.g. for ephemeris computations. expressed in second " |
| Diagram |  |
| Type | xs:double |
| Properties | content: simple<br>minOccurs: 0<br>maxOccurs: 1 |
| Source | <xs:element minOccurs="0" maxOccurs="1" name="time_sampling_step_max" type="xs:double"><br><xs:annotation><br><xs:documentation>"This parameter provides the sampling time for measurements of dynamical phenomena, and for computations. This is the time between 2 successive measurements/data. This may be a query parameter e.g. for ephemeris computations. expressed in second "</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element Time_Type / time_exp_min

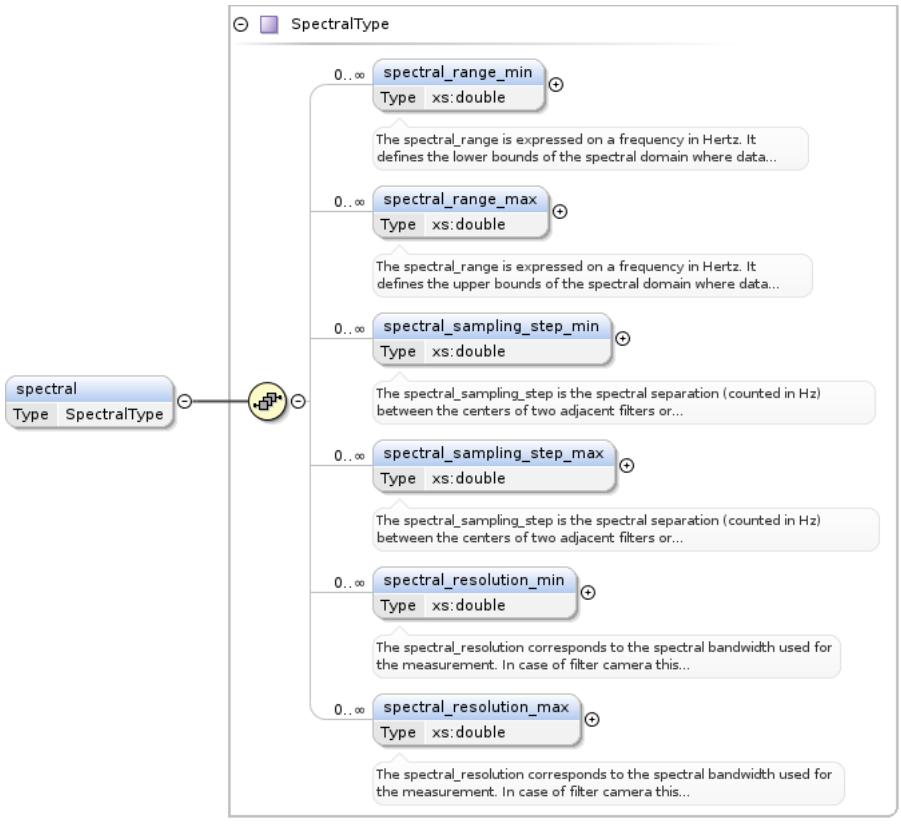
| | |
|---|---|
| Namespace | No namespace |
| Annotations | This parameter corresponds to the minimum integration time of measurements. This time is usually shorter than the time_sampling_step (if both are present). |
| Diagram |  |
| Type | xs:double |
| Properties | content: simple<br>minOccurs: 0<br>maxOccurs: 1 |
| Source | <xs:element name="time_exp_min" minOccurs="0" maxOccurs="1" type="xs:double"><br><xs:annotation><br><xs:documentation>This parameter corresponds to the minimum integration time of measurements. This time is usually shorter than the time_sampling_step (if both are present).</xs:documentation><br></xs:annotation><br></xs:element> |

| | |
|---|---|
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element `Time_Type / time_exp_max`

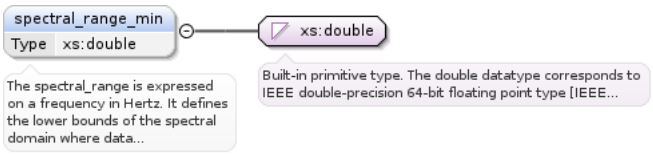
| | |
|---|---|
| Namespace | No namespace |
| Annotations | `This parameter corresponds to the maximum integration time of measurements. This time is usually shorter than the time_sampling_step (if both are present).` |
| Diagram |  |
| Type | xs:double |
| Properties | content: `simple`<br>minOccurs: `0`<br>maxOccurs: `1` |
| Source | `<xs:element name="time_exp_max" minOccurs="0" maxOccurs="1" type="xs:double">`<br>`  <xs:annotation>`<br>`  <xs:documentation>This parameter corresponds to the maximum integration time of measurements. This time is usually shorter than the time_sampling_step (if both are present).</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element `EPNCoreType / spectral`

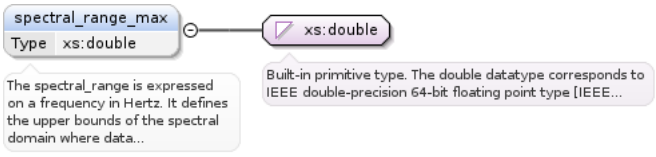
| | |
|---|---|
| Namespace | No namespace |
| Diagram |  |
| Type | SpectralType |
| Properties | content: `complex`<br>minOccurs: `0`<br>maxOccurs: `unbounded` |

| | |
|---|---|
| Model | spectral_range_min* , spectral_range_max* , spectral_sampling_step_min* , spectral_sampling_step_max* , spectral_resolution_min* , spectral_resolution_max* |
| Children | spectral_range_max, spectral_range_min, spectral_resolution_max, spectral_resolution_min, spectral_sampling_step_max, spectral_sampling_step_min |
| Instance | <spectral><br><spectral_range_min>{0,unbounded}</spectral_range_min><br><spectral_range_max>{0,unbounded}</spectral_range_max><br><spectral_sampling_step_min>{0,unbounded}</spectral_sampling_step_min><br><spectral_sampling_step_max>{0,unbounded}</spectral_sampling_step_max><br><spectral_resolution_min>{0,unbounded}</spectral_resolution_min><br><spectral_resolution_max>{0,unbounded}</spectral_resolution_max><br></spectral> |
| Source | <xs:element name="spectral" minOccurs="0" maxOccurs="unbounded" type="SpectralType"/> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

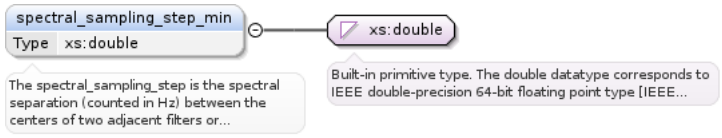
## Element SpectralType / spectral_range_min

| | |
|---|---|
| Namespace | No namespace |
| Annotations | The spectral_range is expressed on a frequency in Hertz. It defines the lower bounds of the spectral domain where data have intersection with the requested spectral range. |
| Diagram |  |
| Type | xs:double |
| Properties | content: simple<br>minOccurs: 0<br>maxOccurs: unbounded |
| Source | <xs:element name="spectral_range_min" minOccurs="0" maxOccurs="unbounded" type="xs:double"><br><xs:annotation><br><xs:documentation>The spectral_range is expressed on a frequency in Hertz. It defines the lower bounds of the spectral domain where data have intersection with the requested spectral range.</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

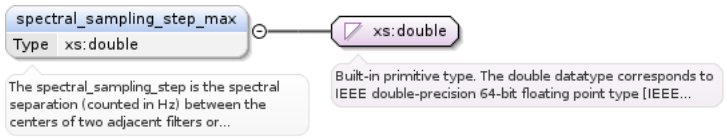
## Element SpectralType / spectral_range_max

| | |
|---|---|
| Namespace | No namespace |
| Annotations | The spectral_range is expressed on a frequency in Hertz. It defines the upper bounds of the spectral domain where data have intersection with the requested spectral range. |
| Diagram |  |
| Type | xs:double |
| Properties | content: simple<br>minOccurs: 0<br>maxOccurs: unbounded |
| Source | <xs:element name="spectral_range_max" minOccurs="0" maxOccurs="unbounded" type="xs:double"><br><xs:annotation><br><xs:documentation>The spectral_range is expressed on a frequency in Hertz. It defines the upper bounds of the spectral domain where data have intersection with the requested spectral range.</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element SpectralType / spectral_sampling_step_min

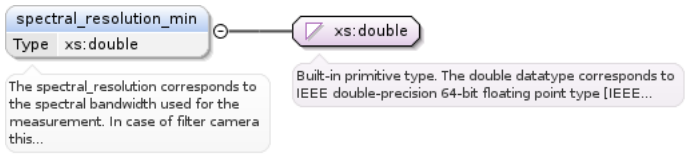
| | |
|---|---|
| Namespace | No namespace |
| Annotations | The spectral_sampling_step is the spectral separation (counted in Hz) between the centers of two adjacent filters or channels). Min is the lower level.<br>This is mostly intended to provide an order of magnitude, e.g. to distinguish between grating spectrometers and Fourier spectrometers, or observations related to surfaces or atmospheres. |
| Diagram |  |
| Type | xs:double |
| Properties | content: simple<br>minOccurs: 0<br>maxOccurs: unbounded |
| Source | <xs:element name="spectral_sampling_step_min" minOccurs="0" maxOccurs="unbounded" type="xs:double"><br><xs:annotation><br><xs:documentation>The spectral_sampling_step is the spectral separation (counted in Hz) between the centers of two adjacent filters or channels). Min is the lower level. This is mostly intended to provide an order of magnitude, e.g. to distinguish between grating spectrometers and Fourier spectrometers, or observations related to surfaces or atmospheres.</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element SpectralType / spectral_sampling_step_max

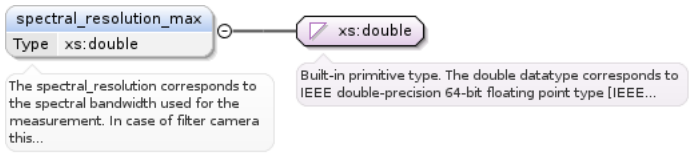
| | |
|---|---|
| Namespace | No namespace |
| Annotations | The spectral_sampling_step is the spectral separation (counted in Hz) between the centers of two adjacent filters or channels). Min is the upper level.<br>This is mostly intended to provide an order of magnitude, e.g. to distinguish between grating spectrometers and Fourier spectrometers, or observations related to surfaces or atmospheres. |
| Diagram |  |
| Type | xs:double |
| Properties | content: simple<br>minOccurs: 0<br>maxOccurs: unbounded |
| Source | <xs:element name="spectral_sampling_step_max" minOccurs="0" maxOccurs="unbounded" type="xs:double"><br><xs:annotation><br><xs:documentation>The spectral_sampling_step is the spectral separation (counted in Hz) between the centers of two adjacent filters or channels). Min is the upper level. This is mostly intended to provide an order of magnitude, e.g. to distinguish between grating spectrometers and Fourier spectrometers, or observations related to surfaces or atmospheres.</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element SpectralType / spectral_resolution_min

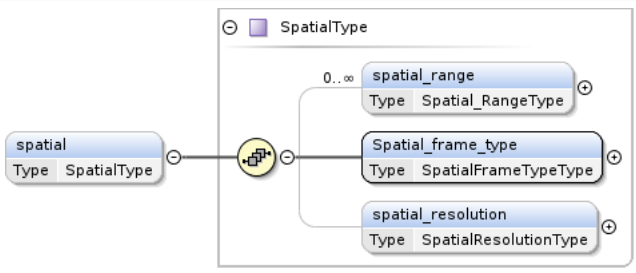
| | |
|---|---|
| Namespace | No namespace |
| Annotations | The spectral_resolution corresponds to the spectral bandwidth used for the measurement. In case of filter camera this is the filter bandwidth; in case of spectrometer this is the spectral resolution.<br>This is mostly intended to provide an order of magnitude, e.g. to distinguish between grating spectrometers and filter cameras.. Min is the lower level. |

| | |
|---|---|
| Diagram |  |
| Type | xs:double |
| Properties | content: simple<br>minOccurs: 0<br>maxOccurs: unbounded |
| Source | <xs:element name="spectral_resolution_min" minOccurs="0" maxOccurs="unbounded" type="xs:double"><br><xs:annotation><br><xs:documentation>The spectral_resolution corresponds to the spectral bandwidth used for the measurement. In case of filter camera this is the filter bandwidth; in case of spectrometer this is the spectral resolution. This is mostly intended to provide an order of magnitude, e.g. to distinguish between grating spectrometers and filter cameras.. Min is the lower level.</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element SpectralType / spectral_resolution_max

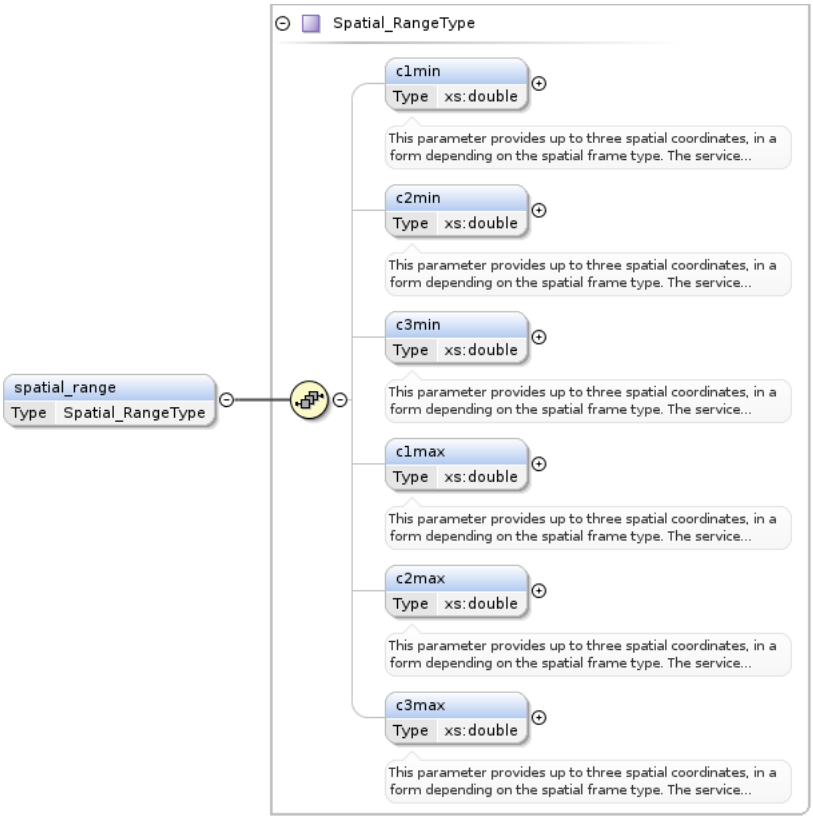
| | |
|---|---|
| Namespace | No namespace |
| Annotations | The spectral_resolution corresponds to the spectral bandwidth used for the measurement. In case of filter camera this is the filter bandwidth; in case of spectrometer this is the spectral resolution.<br>This is mostly intended to provide an order of magnitude, e.g. to distinguish between grating spectrometers and filter cameras.. Max is the upper level. |
| Diagram |  |
| Type | xs:double |
| Properties | content: simple<br>minOccurs: 0<br>maxOccurs: unbounded |
| Source | <xs:element name="spectral_resolution_max" minOccurs="0" maxOccurs="unbounded" type="xs:double"><br><xs:annotation><br><xs:documentation>The spectral_resolution corresponds to the spectral bandwidth used for the measurement. In case of filter camera this is the filter bandwidth; in case of spectrometer this is the spectral resolution. This is mostly intended to provide an order of magnitude, e.g. to distinguish between grating spectrometers and filter cameras.. Max is the upper level.</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element EPNCoreType / spatial

| | |
|---|---|
| Namespace | No namespace |
| Diagram |  |
| Type | SpatialType |

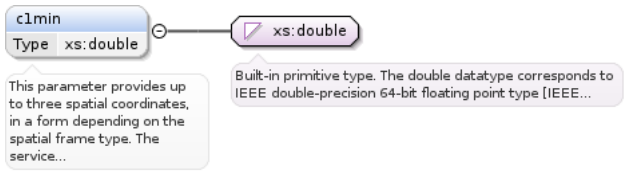
| | |
|---|---|
| Properties | content: complex<br>minOccurs: 0<br>maxOccurs: unbounded |
| Model | spatial_range* , Spatial_frame_type , spatial_resolution{0,1} |
| Children | Spatial_frame_type, spatial_range, spatial_resolution |
| Instance | <spatial><br><spatial_range>{0,unbounded}</spatial_range><br><Spatial_frame_type>{1,1}</Spatial_frame_type><br><spatial_resolution>{0,1}</spatial_resolution><br></spatial> |
| Source | <xs:element name="spatial" minOccurs="0" maxOccurs="unbounded" type="SpatialType"/> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element SpatialType / spatial_range

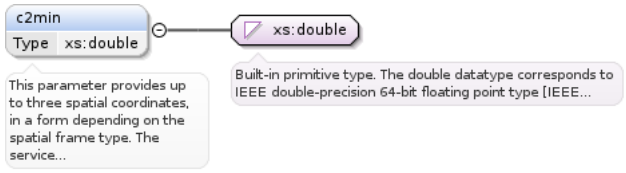
| | |
|---|---|
| Namespace | No namespace |
| Diagram |  |
| Type | Spatial_RangeType |
| Properties | content: complex<br>minOccurs: 0<br>maxOccurs: unbounded |
| Model | c1min{0,1} , c2min{0,1} , c3min{0,1} , c1max{0,1} , c2max{0,1} , c3max{0,1} |
| Children | c1max, c1min, c2max, c2min, c3max, c3min |
| Instance | <spatial_range><br><c1min>{0,1}</c1min><br><c2min>{0,1}</c2min><br><c3min>{0,1}</c3min><br><c1max>{0,1}</c1max><br><c2max>{0,1}</c2max><br><c3max>{0,1}</c3max><br></spatial_range> |
| Source | <xs:element name="spatial_range" minOccurs="0" maxOccurs="unbounded"<br>type="Spatial_RangeType"><br></xs:element> |

| | |
|---|---|
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element Spatial_RangeType / c1min

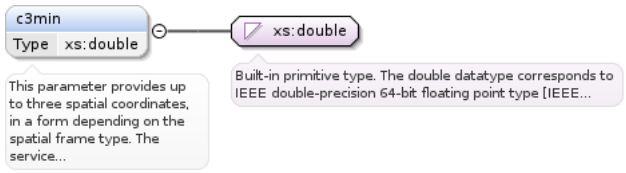
| | |
|---|---|
| Namespace | No namespace |
| Annotations | This parameter provides up to three spatial coordinates, in a form depending on the spatial frame type.<br>The service should handle three dimensions, even if the third one is set to NULL. |
| Diagram |  |
| Type | xs:double |
| Properties | content: simple<br>minOccurs: 0<br>maxOccurs: 1 |
| Source | <xs:element name="c1min" minOccurs="0" maxOccurs="1" type="xs:double"><br><xs:annotation><br><xs:documentation>This parameter provides up to three spatial coordinates, in a form depending on the spatial frame type. The service should handle three dimensions, even if the third one is set to NULL.</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element Spatial_RangeType / c2min

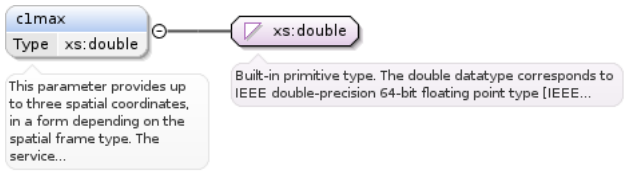
| | |
|---|---|
| Namespace | No namespace |
| Annotations | This parameter provides up to three spatial coordinates, in a form depending on the spatial frame type.<br>The service should handle three dimensions, even if the third one is set to NULL. |
| Diagram |  |
| Type | xs:double |
| Properties | content: simple<br>minOccurs: 0<br>maxOccurs: 1 |
| Source | <xs:element name="c2min" minOccurs="0" maxOccurs="1" type="xs:double"><br><xs:annotation><br><xs:documentation>This parameter provides up to three spatial coordinates, in a form depending on the spatial frame type. The service should handle three dimensions, even if the third one is set to NULL.</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element Spatial_RangeType / c3min

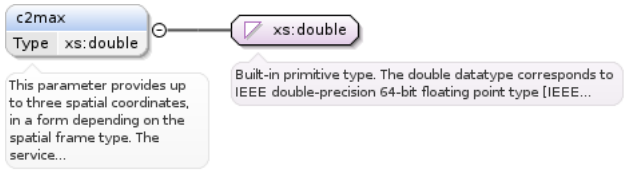
| | |
|---|---|
| Namespace | No namespace |
| Annotations | This parameter provides up to three spatial coordinates, in a form depending on the spatial frame type.<br>The service should handle three dimensions, even if the third one is set to NULL. |

| | |
|---|---|
| Diagram |  |
| Type | xs:double |
| Properties | content: simple<br>minOccurs: 0<br>maxOccurs: 1 |
| Source | `<xs:element name="c3min" minOccurs="0" maxOccurs="1" type="xs:double">`<br>`  <xs:annotation>`<br>`  <xs:documentation>This parameter provides up to three spatial coordinates, in a form depending on the spatial frame type. The service should handle three dimensions, even if the third one is set to NULL.</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element Spatial_RangeType / c1max

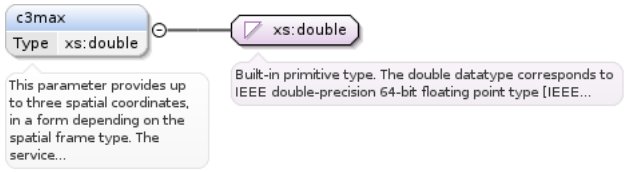
| | |
|---|---|
| Namespace | No namespace |
| Annotations | This parameter provides up to three spatial coordinates, in a form depending on the spatial frame type.<br>The service should handle three dimensions, even if the third one is set to NULL. |
| Diagram |  |
| Type | xs:double |
| Properties | content: simple<br>minOccurs: 0<br>maxOccurs: 1 |
| Source | `<xs:element name="c1max" minOccurs="0" maxOccurs="1" type="xs:double">`<br>`  <xs:annotation>`<br>`  <xs:documentation>This parameter provides up to three spatial coordinates, in a form depending on the spatial frame type. The service should handle three dimensions, even if the third one is set to NULL.</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element Spatial_RangeType / c2max

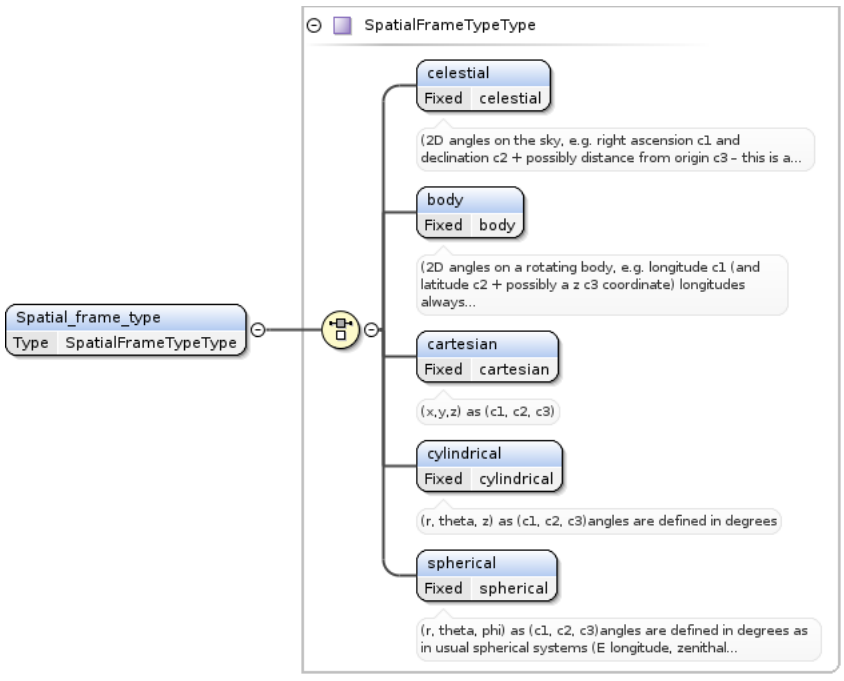
| | |
|---|---|
| Namespace | No namespace |
| Annotations | This parameter provides up to three spatial coordinates, in a form depending on the spatial frame type.<br>The service should handle three dimensions, even if the third one is set to NULL. |
| Diagram |  |
| Type | xs:double |
| Properties | content: simple<br>minOccurs: 0<br>maxOccurs: 1 |

| | |
|---|---|
| Source | <xs:element name="c2max" minOccurs="0" maxOccurs="1" type="xs:double"><br><xs:annotation><br><xs:documentation>This parameter provides up to three spatial coordinates, in a form depending on the spatial frame type. The service should handle three dimensions, even if the third one is set to NULL.</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element Spatial_RangeType / c3max

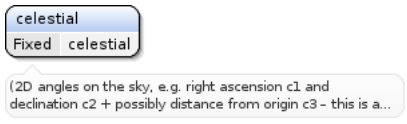
| | |
|---|---|
| Namespace | No namespace |
| Annotations | This parameter provides up to three spatial coordinates, in a form depending on the spatial frame type.<br>The service should handle three dimensions, even if the third one is set to NULL. |
| Diagram |  |
| Type | xs:double |
| Properties | content: simple<br>minOccurs: 0<br>maxOccurs: 1 |
| Source | <xs:element name="c3max" minOccurs="0" maxOccurs="1" type="xs:double"><br><xs:annotation><br><xs:documentation>This parameter provides up to three spatial coordinates, in a form depending on the spatial frame type. The service should handle three dimensions, even if the third one is set to NULL.</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element SpatialType / Spatial_frame_type

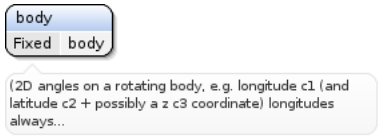
| | |
|---|---|
| Namespace | No namespace |
| Diagram |  |
| Type | SpatialFrameTypeType |
| Properties | content: complex |

| | |
|---|---|
| | minOccurs: 1<br>maxOccurs: 1 |
| Model | celestial \| body \| cartesian \| cylindrical \| spherical |
| Children | body, cartesian, celestial, cylindrical, spherical |
| Instance | <Spatial_frame_type><br><celestial>{1,1}</celestial><br><body>{1,1}</body><br><cartesian>{1,1}</cartesian><br><cylindrical>{1,1}</cylindrical><br><spherical>{1,1}</spherical><br></Spatial_frame_type> |
| Source | <xs:element name="Spatial_frame_type" minOccurs="1" maxOccurs="1"<br>type="SpatialFrameTypeType"><br></xs:element> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element SpatialFrameTypeType / celestial

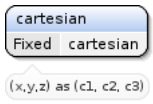
| | |
|---|---|
| Namespace | No namespace |
| Annotations | (2D angles on the sky, e.g. right ascension c1 and declination c2 + possibly distance from origin c3 – this is a special case of spherical frame), |
| Diagram |  |
| Properties | fixed: celestial |
| Source | <xs:element name="celestial" fixed="celestial"><br><xs:annotation><br><xs:documentation>(2D angles on the sky, e.g. right ascension c1 and declination c2 + possibly distance from origin c3 – this is a special case of spherical frame),</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element SpatialFrameTypeType / body

| | |
|---|---|
| Namespace | No namespace |
| Annotations | (2D angles on a rotating body, e.g. longitude c1 (and latitude c2 + possibly a z c3 coordinate)<br>longitudes always increase eastward,<br>the Z coordinate can be the distance counted either from the reference surface or from the body center, TBC (frames are related to body centers, but a surface reference is required for atmospheric structure) |
| Diagram |  |
| Properties | fixed: body |
| Source | <xs:element name="body" fixed="body"><br><xs:annotation><br><xs:documentation>(2D angles on a rotating body, e.g. longitude c1 (and latitude c2 + possibly a z c3 coordinate) longitudes always increase eastward, the Z coordinate can be the distance counted either from the reference surface or from the body center, TBC (frames are related to body centers, but a surface reference is required for atmospheric structure)</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element SpatialFrameTypeType / cartesian

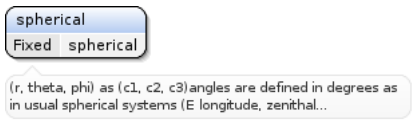
| | |
|---|---|
| Namespace | No namespace |

| | |
|---|---|
| Annotations | (x,y,z) as (c1, c2, c3) |
| Diagram |  |
| Properties | fixed: cartesian |
| Source | <xs:element name="cartesian" fixed="cartesian"><br><xs:annotation><br><xs:documentation>(x,y,z) as (c1, c2, c3)</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element SpatialFrameTypeType / cylindrical

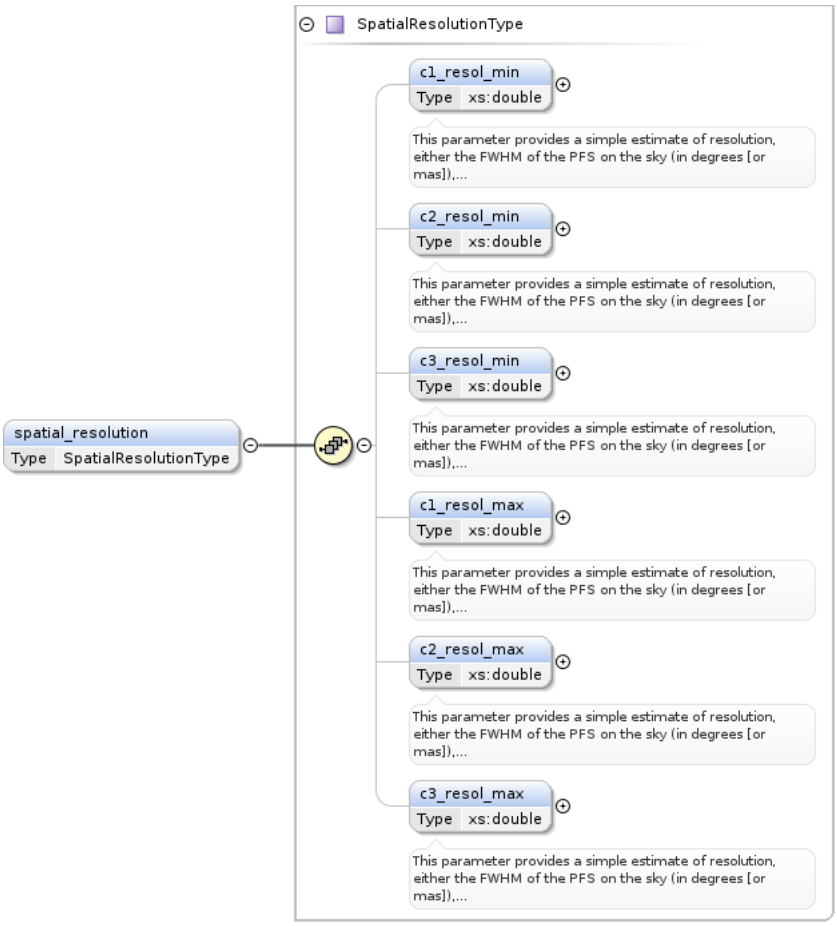
| | |
|---|---|
| Namespace | No namespace |
| Annotations | (r, theta, z) as (c1, c2, c3)angles are defined in degrees |
| Diagram |  |
| Properties | fixed: cylindrical |
| Source | <xs:element name="cylindrical" fixed="cylindrical"><br><xs:annotation><br><xs:documentation>(r, theta, z) as (c1, c2, c3)angles are defined in degrees</<br>xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element SpatialFrameTypeType / spherical

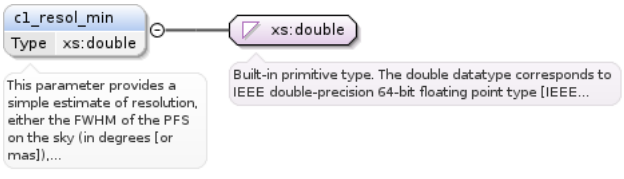
| | |
|---|---|
| Namespace | No namespace |
| Annotations | (r, theta, phi) as (c1, c2, c3)angles are defined in degrees as in usual spherical systems (E longitude, zenithal angle). If related to the sky, “celestial” coordinates with RA/Dec must be used. |
| Diagram |  |
| Properties | fixed: spherical |
| Source | <xs:element name="spherical" fixed="spherical"><br><xs:annotation><br><xs:documentation>(r, theta, phi) as (c1, c2, c3)angles are defined in degrees as in<br>usual spherical systems (E longitude, zenithal angle). If related to the sky, “celestial”<br>coordinates with RA/Dec must be used.</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element SpatialType / spatial_resolution

| | |
|---|---|
| Namespace | No namespace |

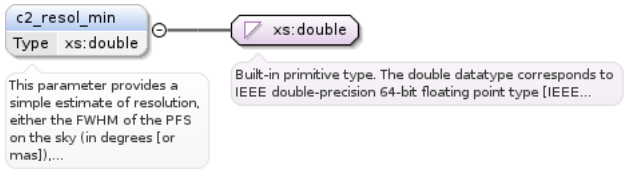
| | |
|---|---|
| Diagram |  |
| Type | SpatialResolutionType |
| Properties | content: complex<br>minOccurs: 0<br>maxOccurs: 1 |
| Model | c1_resol_min{0,1} , c2_resol_min{0,1} , c3_resol_min{0,1} , c1_resol_max{0,1} , c2_resol_max{0,1} , c3_resol_max{0,1} |
| Children | c1_resol_max, c1_resol_min, c2_resol_max, c2_resol_min, c3_resol_max, c3_resol_min |
| Instance | `<spatial_resolution>`<br>`  <c1_resol_min>{0,1}</c1_resol_min>`<br>`  <c2_resol_min>{0,1}</c2_resol_min>`<br>`  <c3_resol_min>{0,1}</c3_resol_min>`<br>`  <c1_resol_max>{0,1}</c1_resol_max>`<br>`  <c2_resol_max>{0,1}</c2_resol_max>`<br>`  <c3_resol_max>{0,1}</c3_resol_max>`<br>`</spatial_resolution>` |
| Source | `<xs:element name="spatial_resolution" minOccurs="0" maxOccurs="1" type="SpatialResolutionType"/>` |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element SpatialResolutionType / c1_resol_min

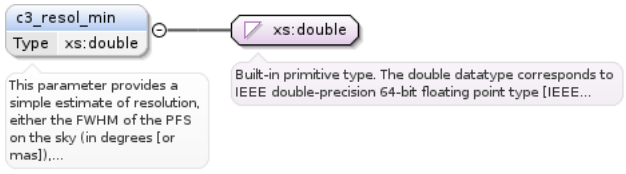
| | |
|---|---|
| Namespace | No namespace |
| Annotations | This parameter provides a simple estimate of resolution, either the FWHM of the PFS on the sky (in degrees [or mas]), or the pixel size on a surface (in km [or m]), depending on spatial_frame_type. |
| Diagram |  |

| | |
|---|---|
| Type | xs:double |
| Properties | content: simple<br>minOccurs: 0<br>maxOccurs: 1 |
| Source | <xs:element name="c1_resol_min" minOccurs="0" maxOccurs="1" type="xs:double"><br><xs:annotation><br><xs:documentation>This parameter provides a simple estimate of resolution, either the FWHM of the PFS on the sky (in degrees [or mas]), or the pixel size on a surface (in km [or m]), depending on spatial_frame_type.</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

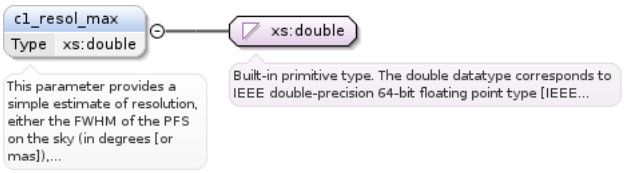
## Element SpatialResolutionType / c2_resol_min

| | |
|---|---|
| Namespace | No namespace |
| Annotations | This parameter provides a simple estimate of resolution, either the FWHM of the PFS on the sky (in degrees [or mas]), or the pixel size on a surface (in km [or m]), depending on spatial_frame_type. |
| Diagram |  |
| Type | xs:double |
| Properties | content: simple<br>minOccurs: 0<br>maxOccurs: 1 |
| Source | <xs:element name="c2_resol_min" minOccurs="0" maxOccurs="1" type="xs:double"><br><xs:annotation><br><xs:documentation>This parameter provides a simple estimate of resolution, either the FWHM of the PFS on the sky (in degrees [or mas]), or the pixel size on a surface (in km [or m]), depending on spatial_frame_type.</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

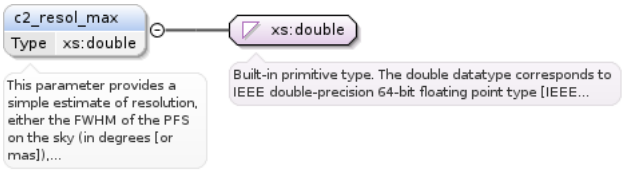
## Element SpatialResolutionType / c3_resol_min

| | |
|---|---|
| Namespace | No namespace |
| Annotations | This parameter provides a simple estimate of resolution, either the FWHM of the PFS on the sky (in degrees [or mas]), or the pixel size on a surface (in km [or m]), depending on spatial_frame_type. |
| Diagram |  |
| Type | xs:double |
| Properties | content: simple<br>minOccurs: 0<br>maxOccurs: 1 |
| Source | <xs:element name="c3_resol_min" minOccurs="0" maxOccurs="1" type="xs:double"><br><xs:annotation><br><xs:documentation>This parameter provides a simple estimate of resolution, either the FWHM of the PFS on the sky (in degrees [or mas]), or the pixel size on a surface (in km [or m]), depending on spatial_frame_type.</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

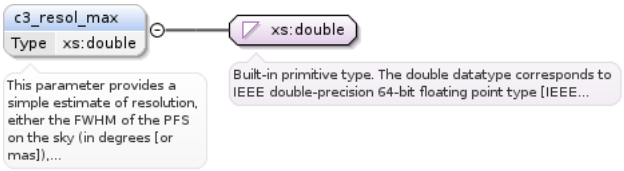
## Element SpatialResolutionType / c1_resol_max

| | |
|---|---|
| Namespace | No namespace |
| Annotations | This parameter provides a simple estimate of resolution, either the FWHM of the PFS on the sky (in degrees [or mas]), or the pixel size on a surface (in km [or m]), depending on spatial_frame_type. |
| Diagram |  |
| Type | xs:double |
| Properties | content: simple<br>minOccurs: 0<br>maxOccurs: 1 |
| Source | `<xs:element name="c1_resol_max" minOccurs="0" maxOccurs="1" type="xs:double">`<br>`  <xs:annotation>`<br>`  <xs:documentation>This parameter provides a simple estimate of resolution, either the FWHM of the PFS on the sky (in degrees [or mas]), or the pixel size on a surface (in km [or m]), depending on spatial_frame_type.</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element SpatialResolutionType / c2_resol_max

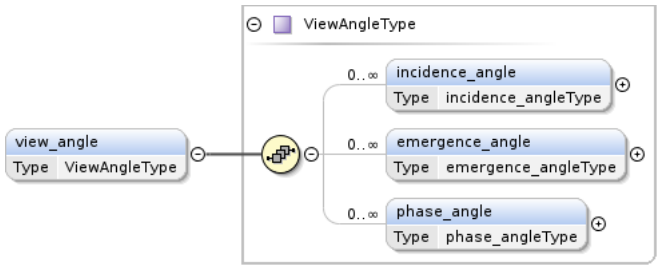
| | |
|---|---|
| Namespace | No namespace |
| Annotations | This parameter provides a simple estimate of resolution, either the FWHM of the PFS on the sky (in degrees [or mas]), or the pixel size on a surface (in km [or m]), depending on spatial_frame_type. |
| Diagram |  |
| Type | xs:double |
| Properties | content: simple<br>minOccurs: 0<br>maxOccurs: 1 |
| Source | `<xs:element name="c2_resol_max" minOccurs="0" maxOccurs="1" type="xs:double">`<br>`  <xs:annotation>`<br>`  <xs:documentation>This parameter provides a simple estimate of resolution, either the FWHM of the PFS on the sky (in degrees [or mas]), or the pixel size on a surface (in km [or m]), depending on spatial_frame_type.</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element SpatialResolutionType / c3_resol_max

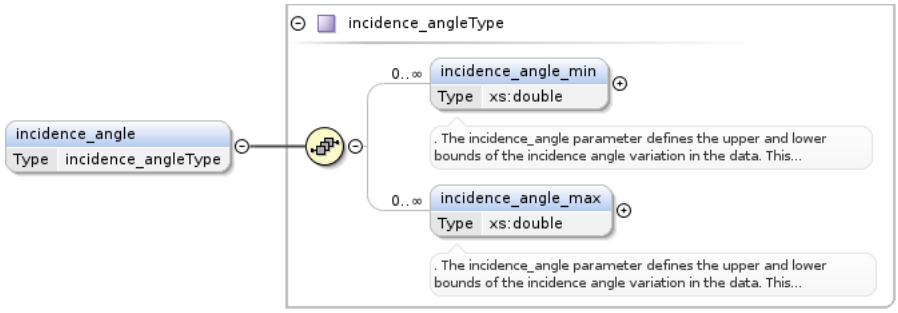
| | |
|---|---|
| Namespace | No namespace |
| Annotations | This parameter provides a simple estimate of resolution, either the FWHM of the PFS on the sky (in degrees [or mas]), or the pixel size on a surface (in km [or m]), depending on spatial_frame_type. |
| Diagram |  |

| | |
|---|---|
| Type | xs:double |
| Properties | content: simple<br>minOccurs: 0<br>maxOccurs: 1 |
| Source | <xs:element name="c3_resol_max" minOccurs="0" maxOccurs="1" type="xs:double"><br><xs:annotation><br><xs:documentation>This parameter provides a simple estimate of resolution, either the FWHM of the PFS on the sky (in degrees [or mas]), or the pixel size on a surface (in km [or m]), depending on spatial_frame_type.</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element EPNCoreType / view_angle

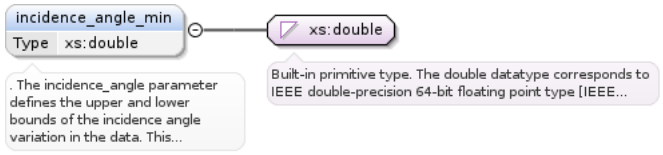
| | |
|---|---|
| Namespace | No namespace |
| Diagram |  |
| Type | ViewAngleType |
| Properties | content: complex<br>minOccurs: 0<br>maxOccurs: unbounded |
| Model | incidence_angle* , emergence_angle* , phase_angle* |
| Children | emergence_angle, incidence_angle, phase_angle |
| Instance | <view_angle><br><incidence_angle>{0,unbounded}</incidence_angle><br><emergence_angle>{0,unbounded}</emergence_angle><br><phase_angle>{0,unbounded}</phase_angle><br></view_angle> |
| Source | <xs:element name="view_angle" minOccurs="0" maxOccurs="unbounded" type="ViewAngleType"/> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element ViewAngleType / incidence_angle

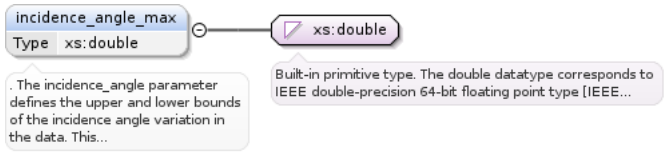
| | |
|---|---|
| Namespace | No namespace |
| Diagram |  |
| Type | incidence_angleType |
| Properties | content: complex<br>minOccurs: 0<br>maxOccurs: unbounded |
| Model | incidence_angle_min* , incidence_angle_max* |

| | |
|---|---|
| Children | incidence_angle_max, incidence_angle_min |
| Instance | <incidence_angle><br><incidence_angle_min>{0,unbounded}</incidence_angle_min><br><incidence_angle_max>{0,unbounded}</incidence_angle_max><br></incidence_angle> |
| Source | <xs:element name="incidence_angle" minOccurs="0" maxOccurs="unbounded"<br>type="incidence_angleType"><br></xs:element> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element incidence_angleType / incidence_angle_min

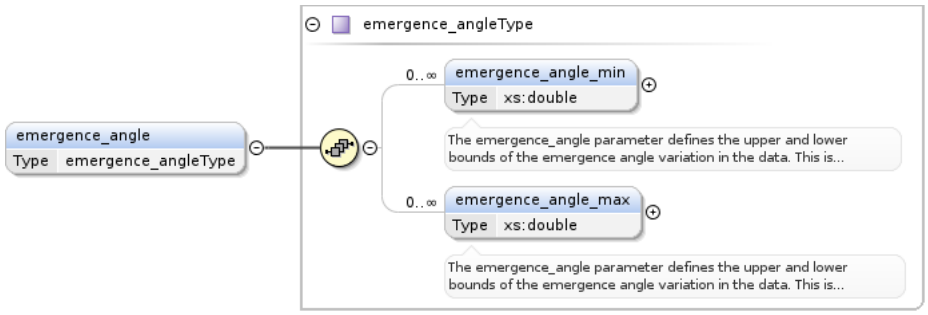
| | |
|---|---|
| Namespace | No namespace |
| Annotations | . The incidence_angle parameter defines the upper and lower bounds of the incidence angle variation in the data. This is always indicated in decimal degrees. |
| Diagram |  |
| Type | xs:double |
| Properties | content: simple<br>minOccurs: 0<br>maxOccurs: unbounded |
| Source | <xs:element name="incidence_angle_min" minOccurs="0" maxOccurs="unbounded"<br>type="xs:double"><br><xs:annotation><br><xs:documentation>. The incidence_angle parameter defines the upper and lower bounds of the incidence angle variation in the data. This is always indicated in decimal degrees.</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element incidence_angleType / incidence_angle_max

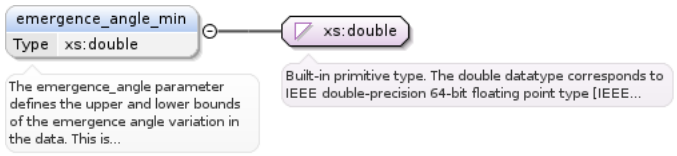
| | |
|---|---|
| Namespace | No namespace |
| Annotations | . The incidence_angle parameter defines the upper and lower bounds of the incidence angle variation in the data. This is always indicated in decimal degrees. |
| Diagram |  |
| Type | xs:double |
| Properties | content: simple<br>minOccurs: 0<br>maxOccurs: unbounded |
| Source | <xs:element name="incidence_angle_max" minOccurs="0" maxOccurs="unbounded"<br>type="xs:double"><br><xs:annotation><br><xs:documentation>. The incidence_angle parameter defines the upper and lower bounds of the incidence angle variation in the data. This is always indicated in decimal degrees.</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element ViewAngleType / emergence_angle

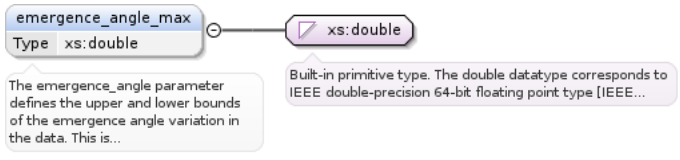
| | |
|---|---|
| Namespace | No namespace |

| | |
|---|---|
| Diagram |  |
| Type | emergence_angleType |
| Properties | content: complex<br>minOccurs: 0<br>maxOccurs: unbounded |
| Model | emergence_angle_min* , emergence_angle_max* |
| Children | emergence_angle_max, emergence_angle_min |
| Instance | `<emergence_angle>`<br>`  <emergence_angle_min>{0,unbounded}</emergence_angle_min>`<br>`  <emergence_angle_max>{0,unbounded}</emergence_angle_max>`<br>`</emergence_angle>` |
| Source | `<xs:element name="emergence_angle" minOccurs="0" maxOccurs="unbounded"`<br>`  type="emergence_angleType">`<br>`</xs:element>` |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element emergence_angleType / emergence_angle_min

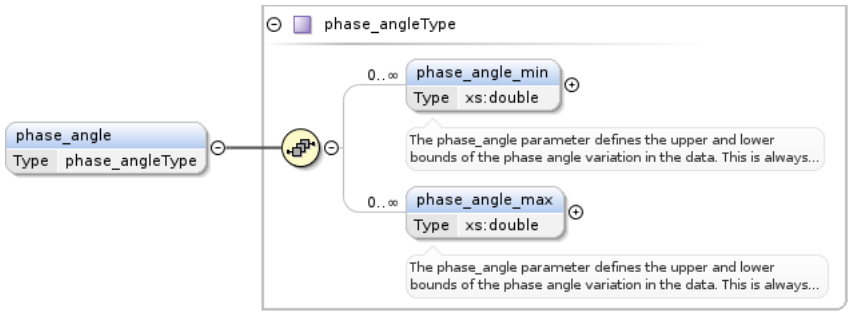
| | |
|---|---|
| Namespace | No namespace |
| Annotations | The emergence_angle parameter defines the upper and lower bounds of the emergence angle variation in the data. This is always indicated in decimal degrees. |
| Diagram |  |
| Type | xs:double |
| Properties | content: simple<br>minOccurs: 0<br>maxOccurs: unbounded |
| Source | `<xs:element name="emergence_angle_min" minOccurs="0" maxOccurs="unbounded"`<br>`  type="xs:double">`<br>`  <xs:annotation>`<br>`  <xs:documentation>The emergence_angle parameter defines the upper and lower bounds of`<br>`  the emergence angle variation in the data. This is always indicated in decimal degrees.</`<br>`xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element emergence_angleType / emergence_angle_max

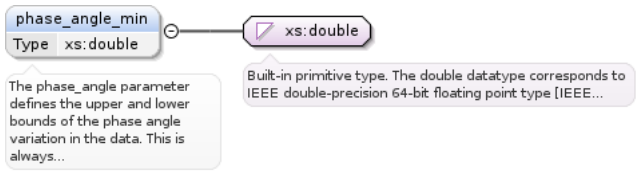
| | |
|---|---|
| Namespace | No namespace |
| Annotations | The emergence_angle parameter defines the upper and lower bounds of the emergence angle variation in the data. This is always indicated in decimal degrees. |
| Diagram |  |

| | |
|---|---|
| Type | xs:double |
| Properties | content: simple<br>minOccurs: 0<br>maxOccurs: unbounded |
| Source | <xs:element name="emergence_angle_max" minOccurs="0" maxOccurs="unbounded" type="xs:double"><br><xs:annotation><br><xs:documentation>The emergence_angle parameter defines the upper and lower bounds of the emergence angle variation in the data. This is always indicated in decimal degrees.</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element ViewAngleType / phase_angle

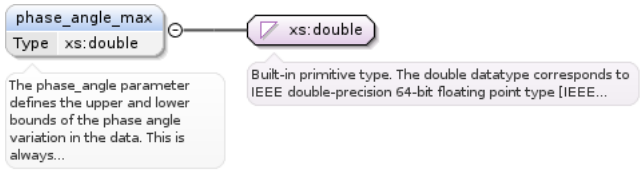
| | |
|---|---|
| Namespace | No namespace |
| Diagram |  |
| Type | phase_angleType |
| Properties | content: complex<br>minOccurs: 0<br>maxOccurs: unbounded |
| Model | phase_angle_min* , phase_angle_max* |
| Children | phase_angle_max, phase_angle_min |
| Instance | <phase_angle><br><phase_angle_min>{0,unbounded}</phase_angle_min><br><phase_angle_max>{0,unbounded}</phase_angle_max><br></phase_angle> |
| Source | <xs:element name="phase_angle" minOccurs="0" maxOccurs="unbounded" type="phase_angleType"><br></xs:element> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element phase_angleType / phase_angle_min

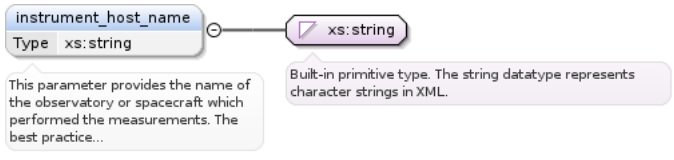
| | |
|---|---|
| Namespace | No namespace |
| Annotations | The phase_angle parameter defines the upper and lower bounds of the phase angle variation in the data. This is always indicated in decimal degrees (+ define convention for negative values?).<br>Phase, incidence and emergence are partly related:<br>abs(i - e) smaler than (phi) smaler than (i + e)<br>If the azimuth angle alpha is provided instead of the phase angle, the latter can be derived from knowledge of the three angles:<br>cos (alpha)=cos (i) cos (e) + cos (alpha) sin (i) sin (e) |
| Diagram |  |
| Type | xs:double |
| Properties | content: simple |

| | |
|---|---|
| | minOccurs: 0 |
| | maxOccurs: unbounded |
| Source | <xs:element name="phase_angle_min" minOccurs="0" maxOccurs="unbounded" type="xs:double"><br><xs:annotation><br><xs:documentation>The phase_angle parameter defines the upper and lower bounds of the phase angle variation in the data. This is always indicated in decimal degrees (+ define convention for negative values?). Phase, incidence and emergence are partly related: abs(i - e) smaler than (phi) smaler than (i + e) If the azimuth angle alpha is provided instead of the phase angle, the latter can be derived from knowledge of the three angles: cos (alpha)=cos (i) cos (e) + cos (alpha) sin (i) sin (e)</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element phase_angleType / phase_angle_max

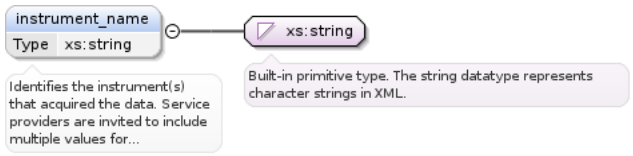
| | |
|---|---|
| Namespace | No namespace |
| Annotations | The phase_angle parameter defines the upper and lower bounds of the phase angle variation in the data. This is always indicated in decimal degrees (+ define convention for negative values?).<br>Phase, incidence and emergence are partly related:<br>abs(i - e) smaler than (phi) smaler than (i + e)<br>If the azimuth angle alpha is provided instead of the phase angle, the latter can be derived from knowledge of the three angles:<br>cos (alpha)=cos (i) cos (e) + cos (alpha) sin (i) sin (e) |
| Diagram |  |
| Type | xs:double |
| Properties | content: simple<br>minOccurs: 0<br>maxOccurs: unbounded |
| Source | <xs:element name="phase_angle_max" minOccurs="0" maxOccurs="unbounded" type="xs:double"><br><xs:annotation><br><xs:documentation>The phase_angle parameter defines the upper and lower bounds of the phase angle variation in the data. This is always indicated in decimal degrees (+ define convention for negative values?). Phase, incidence and emergence are partly related: abs(i - e) smaler than (phi) smaler than (i + e) If the azimuth angle alpha is provided instead of the phase angle, the latter can be derived from knowledge of the three angles: cos (alpha)=cos (i) cos (e) + cos (alpha) sin (i) sin (e)</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element EPNCoreType / instrument_host_name

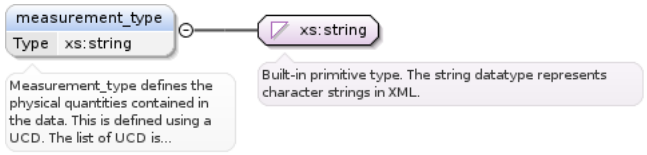
| | |
|---|---|
| Namespace | No namespace |
| Annotations | This parameter provides the name of the observatory or spacecraft which performed the measurements.<br>The best practice is to use IAU observatory codes for ground-based observations: http://www.minorplanetcenter.net/iau/lists/ObsCodesF.html<br>Concerning space-borne data, SPICE clearly defines ID for space mission names: http://www-int.stsci.edu/~sontag/spicedocs/req/naif_ids.html<br>and the PDS dictionary defines values for mission names |
| Diagram |  |
| Type | xs:string |
| Properties | content: simple<br>minOccurs: 0 |

| | |
|---|---|
| | maxOccurs: unbounded |
| Source | <xs:element name="instrument_host_name" minOccurs="0" maxOccurs="unbounded" type="xs:string"> <xs:annotation> <xs:documentation>This parameter provides the name of the observatory or spacecraft which performed the measurements. The best practice is to use IAU observatory codes for ground-based observations: http://www.minorplanetcenter.net/iau/lists/ObsCodesF.html Concerning space-borne data, SPICE clearly defines ID for space mission names: http://www-int.stsci.edu/~sontag/spicedocs/req/naif_ids.html and the PDS dictionary defines values for mission names</xs:documentation> </xs:annotation> </xs:element> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element EPNCoreType / instrument_name

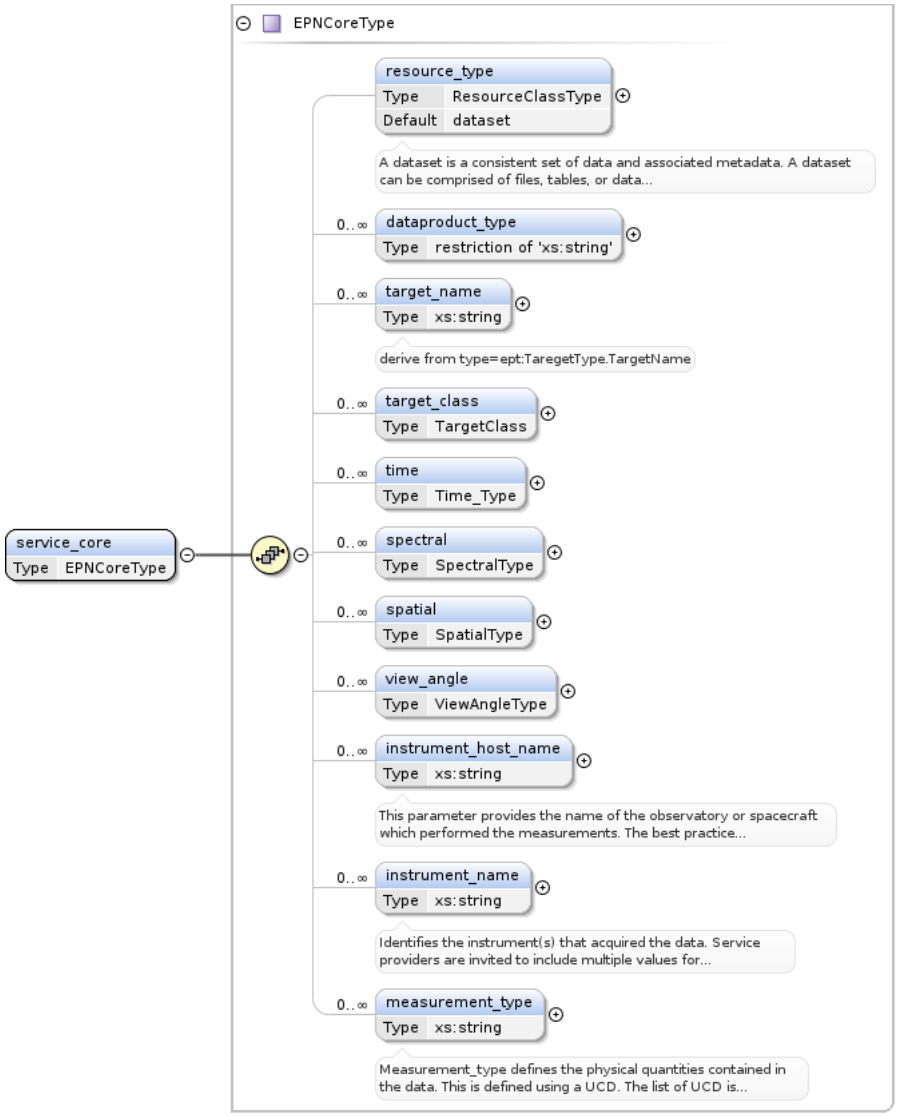
| | |
|---|---|
| Namespace | No namespace |
| Annotations | Identifies the instrument(s) that acquired the data. Service providers are invited to include multiple values for instrument name, e.g., complete name + usual acronym. This will allow queries on either "VISIBLE AND INFRARED THERMAL IMAGING SPECTROMETER" or VIRTIS to produce the same reply. |
| Diagram |   |
| Type | xs:string |
| Properties | content: simple<br>minOccurs: 0<br>maxOccurs: unbounded |
| Source | <xs:element name="instrument_name" minOccurs="0" maxOccurs="unbounded" type="xs:string"> <xs:annotation> <xs:documentation>Identifies the instrument(s) that acquired the data. Service providers are invited to include multiple values for instrument name, e.g., complete name + usual acronym. This will allow queries on either "VISIBLE AND INFRARED THERMAL IMAGING SPECTROMETER" or VIRTIS to produce the same reply.</xs:documentation> </xs:annotation> </xs:element> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element EPNCoreType / measurement_type

| | |
|---|---|
| Namespace | No namespace |
| Annotations | Measurement_type defines the physical quantities contained in the data. This is defined using a UCD. The list of UCD is related to all quantities included in the service, not only those used for the data in the idis_core table. The provider should use the UCD list from IVOA and extend it only if necessary. |
| Diagram |   |
| Type | xs:string |
| Properties | content: simple<br>minOccurs: 0<br>maxOccurs: unbounded |
| Source | <xs:element name="measurement_type" minOccurs="0" maxOccurs="unbounded" type="xs:string"> <xs:annotation> <xs:documentation>Measurement_type defines the physical quantities contained in the data. This is defined using a UCD. The list of UCD is related to all quantities included in the service, not only those used for the data in the idis_core table. The provider should use the UCD list from IVOA and extend it only if necessary.</xs:documentation> |

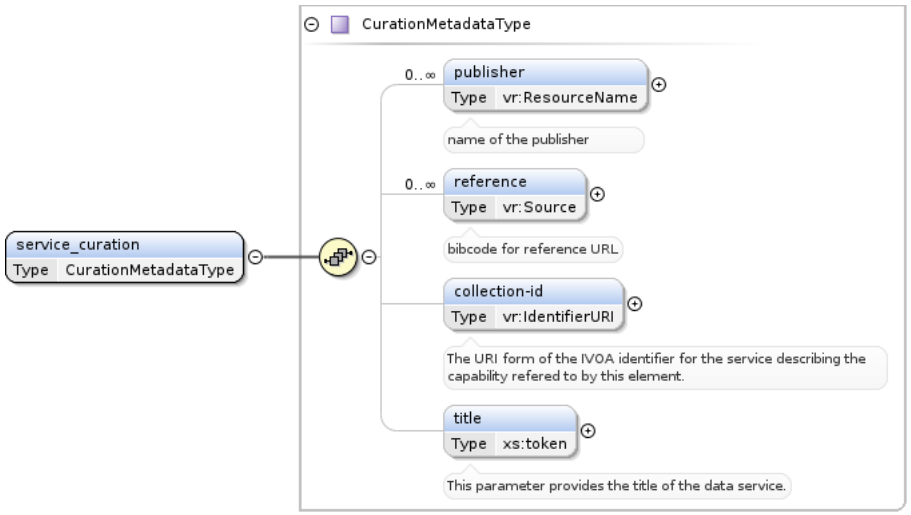
| | |
|---|---|
| | </xs:annotation><br></xs:element> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element EPNResponseType / service_core

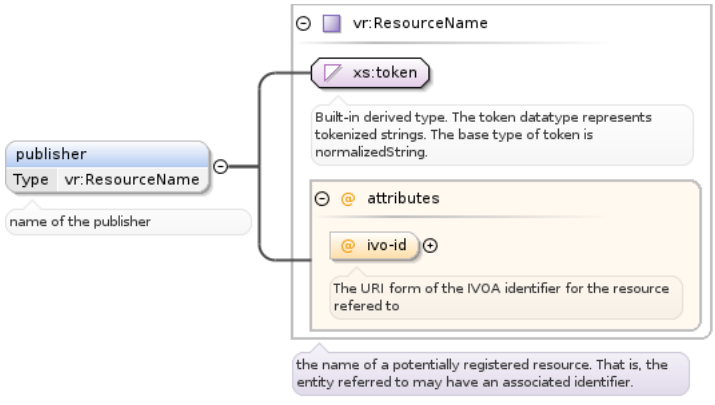
| | |
|---|---|
| Namespace | No namespace |
| Diagram |  |
| Type | EPNCoreType |
| Properties | content: complex |
| Model | resource_type{0,1} , dataproduct_type* , target_name* , target_class* , time* , spectral* , spatial* , view_angle* , instrument_host_name* , instrument_name* , measurement_type* |
| Children | dataproduct_type, instrument_host_name, instrument_name, measurement_type, resource_type, spatial, spectral, target_class, target_name, time, view_angle |
| Instance | <service_core><br>  <resource_type>{0,1}</resource_type><br>  <dataproduct_type>{0,unbounded}</dataproduct_type><br>  <target_name>{0,unbounded}</target_name><br>  <target_class>{0,unbounded}</target_class><br>  <time>{0,unbounded}</time><br>  <spectral>{0,unbounded}</spectral><br>  <spatial>{0,unbounded}</spatial><br>  <view_angle>{0,unbounded}</view_angle><br>  <instrument_host_name>{0,unbounded}</instrument_host_name><br>  <instrument_name>{0,unbounded}</instrument_name><br>  <measurement_type>{0,unbounded}</measurement_type><br></service_core> |

| | |
|---|---|
| Source | <xs:element name="service_core" type="EPNCoreType"/> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element EPNResponseType / service_curation

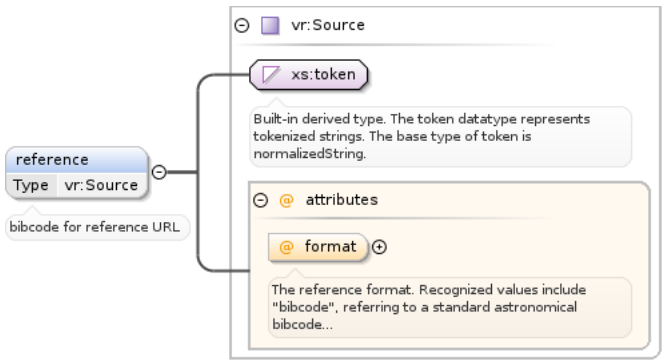
| | |
|---|---|
| Namespace | No namespace |
| Diagram |  |
| Type | CurationMetadataType |
| Properties | content: complex |
| Model | publisher* , reference* , collection-id{0,1} , title{0,1} |
| Children | collection-id, publisher, reference, title |
| Instance | <service_curation><br>  <publisher ivo-id="">{0,unbounded}</publisher><br>  <reference format="">{0,unbounded}</reference><br>  <collection-id>{0,1}</collection-id><br>  <title>{0,1}</title><br></service_curation> |
| Source | <xs:element name="service_curation" type="CurationMetadataType"/> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element CurationMetadataType / publisher

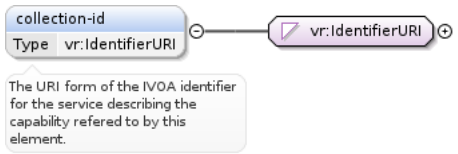
| | |
|---|---|
| Namespace | No namespace |
| Annotations | name of the publisher |
| Diagram |  |
| Type | vr:ResourceName |
| Properties | content: complex<br>minOccurs: 0<br>maxOccurs: unbounded |

| | | | | | |
|---|---|---|---|---|---|
| Attributes | **QName** | **Type** | **Fixed** | **Default** | **Use** |
| | **ivo-id** | vr:IdentifierURI | | | optional |
| | | The URI form of the IVOA identifier for the resource refered to | | | |
| Source | <xs:element name="publisher" type="vr:ResourceName" minOccurs="0" maxOccurs="unbounded"><br><xs:annotation><br><xs:documentation>name of the publisher</xs:documentation><br></xs:annotation><br></xs:element> | | | | |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd | | | | |

## Element CurationMetadataType / reference

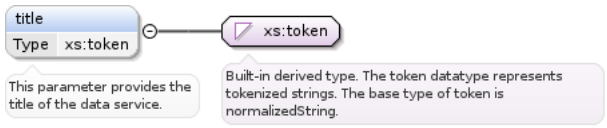
| | | | | | |
|---|---|---|---|---|---|
| Namespace | No namespace | | | | |
| Annotations | bibcode for reference URL | | | | |
| Diagram |  | | | | |
| Type | vr:Source | | | | |
| Properties | content: | complex | | | |
| | minOccurs: | 0 | | | |
| | maxOccurs: | unbounded | | | |
| Attributes | **QName** | **Type** | **Fixed** | **Default** | **Use** |
| | **format** | xs:string | | | optional |
| | | The reference format. Recognized values include "bibcode", referring to a standard astronomical bibcode (http://cdsweb.u-strasbg.fr/simbad/refcode.html). | | | |
| Source | <xs:element name="reference" type="vr:Source" minOccurs="0" maxOccurs="unbounded"><br><xs:annotation><br><xs:documentation>bibcode for reference URL</xs:documentation><br></xs:annotation><br></xs:element> | | | | |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd | | | | |

## Element CurationMetadataType / collection-id

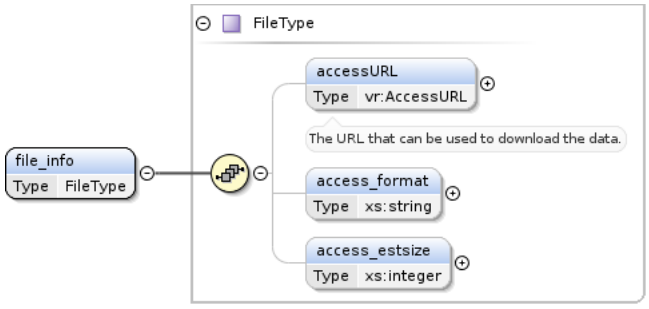
| | | |
|---|---|---|
| Namespace | No namespace | |
| Annotations | The URI form of the IVOA identifier for the service describing the capability refered to by this element. | |
| Diagram |  | |
| Type | vr:IdentifierURI | |
| Properties | content: | simple |
| | minOccurs: | 0 |
| Facets | pattern | ivo://[\w\d][\w\d\-_<br>\.!~*'\(\)\+=]{2,}(/ |

| | |
|---|---|
| | [\w\d\-_\.!~*'\(\)\<br>+=]+(/[\w\d\-_\.!~<br>*'\(\)\+=]+)*)? |
| Source | <xs:element name="collection-id" type="vr:IdentifierURI" minOccurs="0"><br><xs:annotation><br><xs:documentation>The URI form of the IVOA identifier for the service describing the capability refered to by this element.</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element CurationMetadataType / title

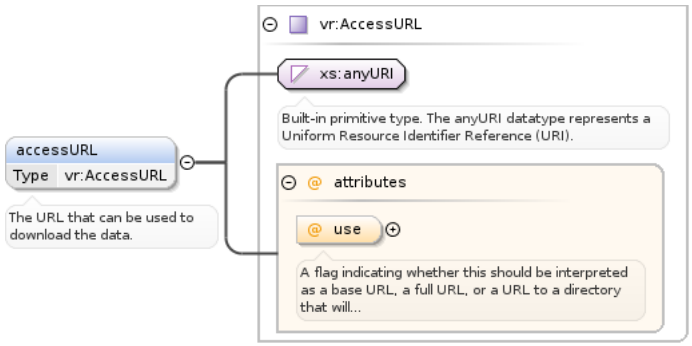
| | |
|---|---|
| Namespace | No namespace |
| Annotations | This parameter provides the title of the data service. |
| Diagram |  |
| Type | xs:token |
| Properties | content: simple<br>minOccurs: 0 |
| Source | <xs:element name="title" type="xs:token" minOccurs="0"><br><xs:annotation><br><xs:documentation>This parameter provides the title of the data service.</<br>xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element EPNResponseType / file_info

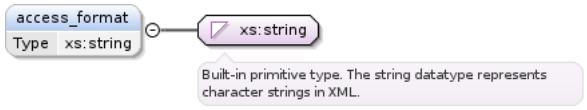
| | |
|---|---|
| Namespace | No namespace |
| Diagram |  |
| Type | FileType |
| Properties | content: complex |
| Model | accessURL{0,1} , access_format{0,1} , access_estsize{0,1} |
| Children | accessURL, access_estsize, access_format |
| Instance | <file_info><br><accessURL use="">{0,1}</accessURL><br><access_format>{0,1}</access_format><br><access_estsize>{0,1}</access_estsize><br></file_info> |
| Source | <xs:element name="file_info" type="FileType"/> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element FileType / accessURL

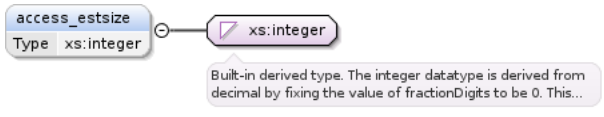
| | |
|---|---|
| Namespace | No namespace |
| Annotations | The URL that can be used to download the data. |

| | |
|---|---|
| Diagram |  |
| Type | vr:AccessURL |
| Properties | content: complex<br>minOccurs: 0 |
| Attributes | **QName**: **use**; **Type**: restriction of xs:NMTOKEN; **Fixed**: ; **Default**: ; **Use**: optional<br>A flag indicating whether this should be interpreted as a base URL, a full URL, or a URL to a directory that will produce a listing of files.<br>The default value assumed when one is not given depends on the context. |
| Source | `<xs:element name="accessURL" type="vr:AccessURL" minOccurs="0">`<br>`  <xs:annotation>`<br>`  <xs:documentation>The URL that can be used to download the data.</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element FileType / access_format

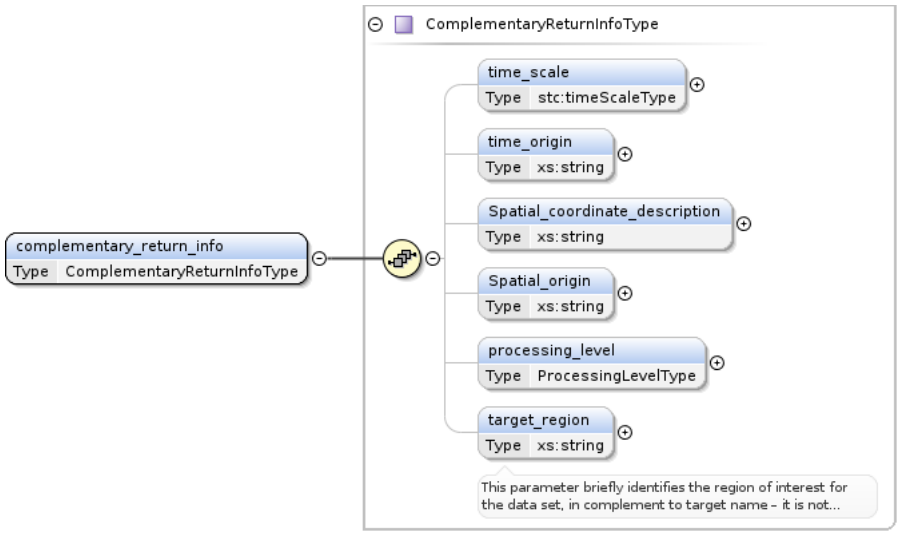
| | |
|---|---|
| Namespace | No namespace |
| Diagram |  |
| Type | xs:string |
| Properties | content: simple<br>minOccurs: 0 |
| Source | `<xs:element name="access_format" type="xs:string" minOccurs="0"/>` |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element FileType / access_estsize

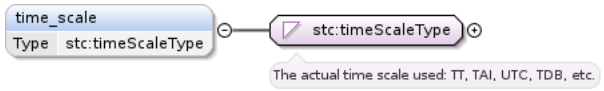
| | |
|---|---|
| Namespace | No namespace |
| Diagram |  |
| Type | xs:integer |
| Properties | content: simple<br>minOccurs: 0 |
| Source | `<xs:element name="access_estsize" type="xs:integer" minOccurs="0"/>` |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element EPNResponseType / complementary_return_info

| | |
|---|---|
| Namespace | No namespace |

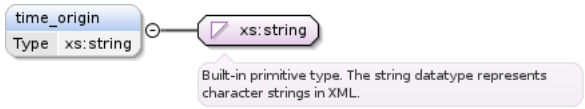
| | |
|---|---|
| Diagram |  |
| Type | ComplementaryReturnInfoType |
| Properties | content: complex |
| Model | time_scale{0,1} , time_origin{0,1} , Spatial_coordinate_description{0,1} , Spatial_origin{0,1} , processing_level{0,1} , target_region{0,1} |
| Children | Spatial_coordinate_description, Spatial_origin, processing_level, target_region, time_origin, time_scale |
| Instance | <pre><complementary_return_info><br>  <time_scale>{0,1}</time_scale><br>  <time_origin>{0,1}</time_origin><br>  <Spatial_coordinate_description>{0,1}</Spatial_coordinate_description><br>  <Spatial_origin>{0,1}</Spatial_origin><br>  <processing_level>{0,1}</processing_level><br>  <target_region>{0,1}</target_region><br></complementary_return_info></pre> |
| Source | <pre><xs:element name="complementary_return_info" type="ComplementaryReturnInfoType"/></pre> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element ComplementaryReturnInfoType / time_scale

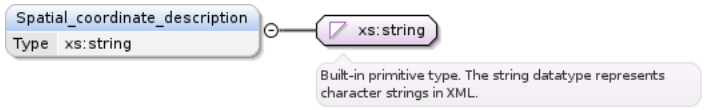
| | | | |
|---|---|---|---|
| Namespace | No namespace | | |
| Diagram |  | | |
| Type | timeScaleType | | |
| Properties | content: | simple | |
| | minOccurs: | 0 | |
| | maxOccurs: | 1 | |
| Facets | enumeration | TT | Terrestrial Time; the basis for ephemerides |
| | enumeration | TDT | Obsolete synonym for TT |
| | enumeration | ET | Ephemeris Time; predecessor of, and continuous with, TT |
| | enumeration | TDB | Barycentric Dynamic Time:the independent variable in planetay ephemerides; time at the solar system barycenter synchronous with TT on an annual basis; sometimes called TEB |
| | enumeration | TEB | Barycentric Ephemeris Time: time at the solar system barycenter synchronous with TT on an annual basis; a deprecated synonym of TDB. |
| | enumeration | TCG | Terrestrial Coordinate Time |
| | enumeration | TCB | Barycentric Coordinate Time; runs slower than TDB but is consistent with physical constants |

| | | | |
|---|---|---|---|
| | enumeration | TAI | International Atomic Time; runs 32.184 s behind TT |
| | enumeration | IAT | Synonym for TAI |
| | enumeration | UTC | Coordinated Universal Time; currently (2006) runs 33 leapseconds behind TAI |
| | enumeration | GPS | Global Positioning System's time scale; runs 19 s behind TAI, 51.184 s behind TT. |
| | enumeration | LST | Local Siderial Time; only for ground-based observations; note that the second is shorter |
| | enumeration | GMST | Greenwich Mean Siderial Time; only for ground-based observations; note that the second is shorter |
| | enumeration | LOCAL | Only to be used for simulations in conjunction with a relocatable spatial frame |
| Source | <xs:element minOccurs="0" maxOccurs="1" name="time_scale" type="stc:timeScaleType"> </xs:element> | | |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd | | |

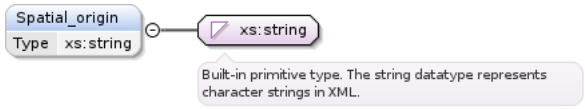
## Element ComplementaryReturnInfoType / time_origin

| | |
|---|---|
| Namespace | No namespace |
| Diagram |   |
| Type | xs:string |
| Properties | content: simple<br>minOccurs: 0 |
| Source | <xs:element minOccurs="0" name="time_origin" type="xs:string"> </xs:element> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element ComplementaryReturnInfoType / Spatial_coordinate_description

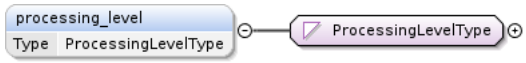
| | |
|---|---|
| Namespace | No namespace |
| Diagram |   |
| Type | xs:string |
| Properties | content: simple<br>minOccurs: 0 |
| Source | <xs:element minOccurs="0" name="Spatial_coordinate_description" type="xs:string"> </xs:element> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element ComplementaryReturnInfoType / Spatial_origin

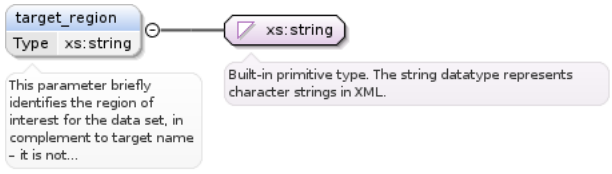
| | |
|---|---|
| Namespace | No namespace |
| Diagram |   |
| Type | xs:string |
| Properties | content: simple<br>minOccurs: 0 |

| | |
|---|---|
| Source | <xs:element minOccurs="0" name="Spatial_origin" type="xs:string"><br></xs:element> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

## Element ComplementaryReturnInfoType / processing_level

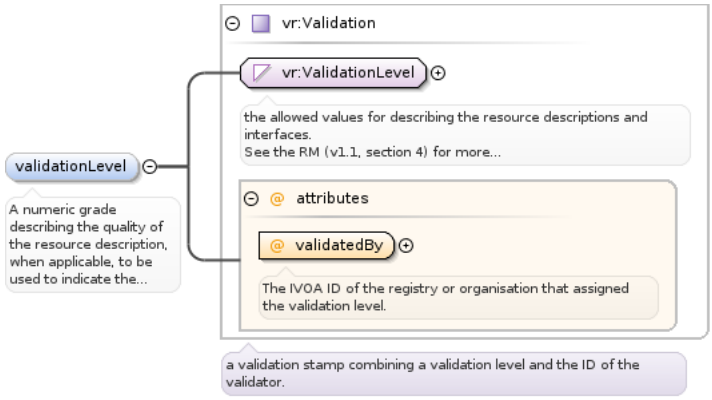
| | | | |
|---|---|---|---|
| Namespace | No namespace | | |
| Diagram |  | | |
| Type | ProcessingLevelType | | |
| Properties | content: | simple | |
| | minOccurs: | 0 | |
| Facets | enumeration | 1 | raw data : Unprocessed Data Record (low level encoding, e.g. telemetry from a spacecraft instrument. Normally available only to the original team) |
| | enumeration | 2 | edited : Experiment Data Record (often referred to as “raw data”: decommutated, but still affected by instrumental effects) |
| | enumeration | 3 | partially calibrated data : Reduced Data Record (“calibrated” in physical units) |
| | enumeration | 4 | resampled : Reformatted Data Record (mosaics or composite of several observing sessions, involving some level of data fusion) |
| | enumeration | 5 | derived : Derived Data Record (results of data analysis, directly usable by other communities with no further processing) |
| | enumeration | 6 | Ancillary Data Record (extra data specifically supporting a data set, such as coordinates, geometry…) |
| Source | <xs:element minOccurs="0" name="processing_level" type="ProcessingLevelType"><br></xs:element> | | |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd | | |

## Element ComplementaryReturnInfoType / target_region

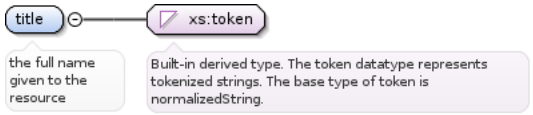
| | |
|---|---|
| Namespace | No namespace |
| Annotations | This parameter briefly identifies the region of interest for the data set, in complement to target name – it is not mandatory. This parameter only introduces generic regions, not specific local names (see examples below).<br>The best practice is to take the values from standard sources:<br>- IAU thesaurus http://www.mso.anu.edu.au/library/thesaurus/<br>+ another version: http://www.vocabularyserver.com/trex/en/<br>The second one seems more recent and more complete (although the interface is not practical)<br>- Spase dictionary “http://www.spase-group.org/” |
| Diagram |  |
| Type | xs:string |
| Properties | content: simple<br>minOccurs: 0 |
| Source | <xs:element minOccurs="0" name="target_region" type="xs:string"><br><xs:annotation><br><xs:documentation>This parameter briefly identifies the region of interest for the data set, in complement to target name – it is not mandatory. This parameter only introduces generic regions, not specific local names (see examples below). The best practice is to take the values from standard sources: - IAU thesaurus http:// |

| | |
|---|---|
| | www.mso.anu.edu.au/library/thesaurus/ + another version: http://www.vocabularyserver.com/trex/en/ The second one seems more recent and more complete (although the interface is not practical) - Spase dictionary “http://www.spase-group.org/”</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | file:/home/lesidaner/Mes_documents/avo/Europlanet/site-web/europlanet/xml/TAPCore/EPNCore.xsd |

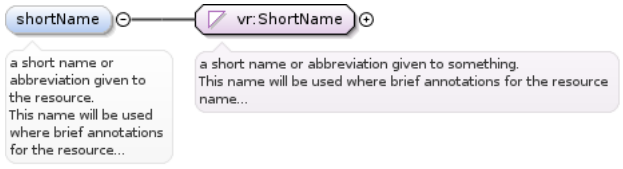
## Element vr:Resource / validationLevel

| | |
|---|---|
| Namespace | No namespace |
| Annotations | A numeric grade describing the quality of the resource description, when applicable, to be used to indicate the confidence an end-user can put in the resource as part of a VO application or research study.<br><br>See vr:ValidationLevel for an explanation of the allowed levels.<br><br>Note that when this resource is a Service, this grade applies to the core set of metadata. Capability and interface metadata, as well as the compliance of the service with the interface standard, is rated by validationLevel tag in the capability element (see the vr:Service complex type). |
| Diagram |  |
| Type | vr:Validation |
| Type hierarchy | • xs:integer<br>  • vr:ValidationLevel<br>  • vr:Validation |
| Properties | content: complex<br>minOccurs: 0<br>maxOccurs: unbounded |
| Attributes | **QName** \| **Type** \| **Fixed** \| **Default** \| **Use**<br>**validatedBy** \| vr:IdentifierURI \| \| \| required<br>The IVOA ID of the registry or organisation that assigned the validation level. |
| Source | <xs:element name="validationLevel" type="vr:Validation" minOccurs="0" maxOccurs="unbounded"><br><xs:annotation><br><xs:documentation>A numeric grade describing the quality of the resource description, when applicable, to be used to indicate the confidence an end-user can put in the resource as part of a VO application or research study.</xs:documentation><br><xs:documentation>See vr:ValidationLevel for an explanation of the allowed levels.</xs:documentation><br><xs:documentation>Note that when this resource is a Service, this grade applies to the core set of metadata. Capability and interface metadata, as well as the compliance of the service with the interface standard, is rated by validationLevel tag in the capability element (see the vr:Service complex type).</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

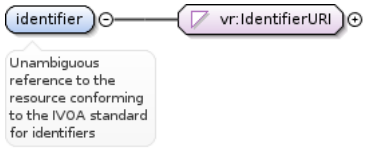
## Element vr:Resource / title

| | |
|---|---|
| Namespace | No namespace |
| Annotations | the full name given to the resource |
| Diagram |  |
| Type | xs:token |
| Properties | content: simple |
| Source | <xs:element name="title" type="xs:token"><br><xs:annotation><br><xs:appinfo><br><vm:dcterm>Title</vm:dcterm><br></xs:appinfo><br><xs:documentation>the full name given to the resource</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Element vr:Resource / shortName

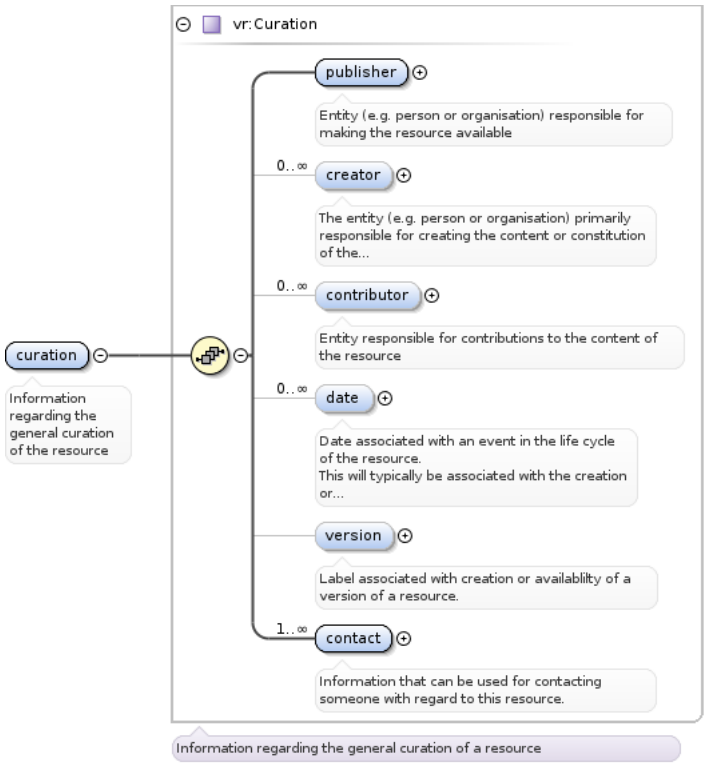
| | |
|---|---|
| Namespace | No namespace |
| Annotations | a short name or abbreviation given to the resource.<br><br>This name will be used where brief annotations for the resource name are required. Applications may use to refer to this resource in a compact display.<br><br>One word or a few letters is recommended. No more than sixteen characters are allowed. |
| Diagram |  |
| Type | vr:ShortName |
| Properties | content: simple<br>minOccurs: 0 |
| Facets | maxLength 16 |
| Source | <xs:element name="shortName" type="vr:ShortName" minOccurs="0"><br><xs:annotation><br><xs:documentation>a short name or abbreviation given to the resource.</xs:documentation><br><xs:documentation>This name will be used where brief annotations for the resource name are required. Applications may use to refer to this resource in a compact display.</xs:documentation><br><xs:documentation>One word or a few letters is recommended. No more than sixteen characters are allowed.</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Element vr:Resource / identifier

| | |
|---|---|
| Namespace | No namespace |
| Annotations | Unambiguous reference to the resource conforming to the IVOA standard for identifiers |
| Diagram |  |

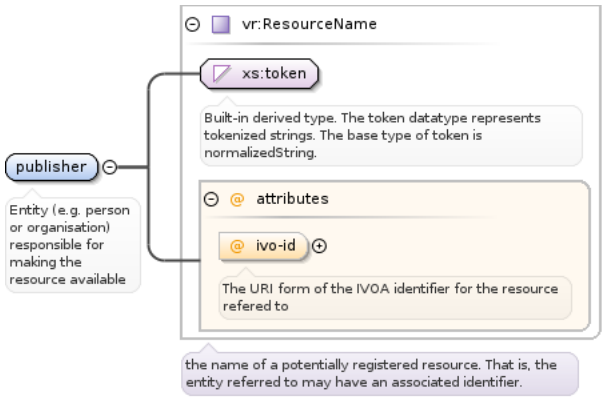
| | |
|---|---|
| Type | vr:IdentifierURI |
| Properties | content: simple |
| Facets | pattern ivo://[\w\d][\w\d\-_<br>\.!~*'\(\)\+=]{2,}(/<br>[\w\d\-_\.!~*'\(\)\<br>+=]+(/[\w\d\-_\.!~<br>*'\(\)\+=]+)*)? |
| Source | <xs:element name="identifier" type="vr:IdentifierURI"><br><xs:annotation><br><xs:appinfo><br><vm:dcterm>Identifier</vm:dcterm><br></xs:appinfo><br><xs:documentation>Unambiguous reference to the resource conforming to the IVOA standard for identifiers</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Element vr:Resource / curation

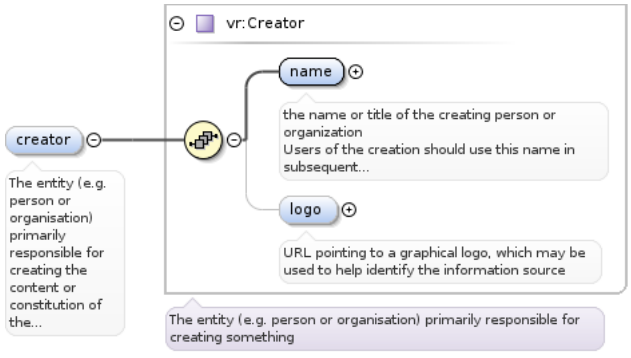
| | |
|---|---|
| Namespace | No namespace |
| Annotations | Information regarding the general curation of the resource |
| Diagram |  |
| Type | vr:Curation |
| Properties | content: complex |
| Model | publisher , creator* , contributor* , date* , version{0,1} , contact+ |
| Children | contact, contributor, creator, date, publisher, version |
| Instance | <curation><br><publisher ivo-id="">{1,1}</publisher><br><creator>{0,unbounded}</creator><br><contributor ivo-id="">{0,unbounded}</contributor><br><date role="representative">{0,unbounded}</date><br><version>{0,1}</version><br><contact>{1,unbounded}</contact><br></curation> |
| Source | <xs:element name="curation" type="vr:Curation"><br><xs:annotation><br><xs:documentation>Information regarding the general curation of the resource</xs:documentation> |

| | |
|---|---|
| | </xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Element vr:Curation / publisher

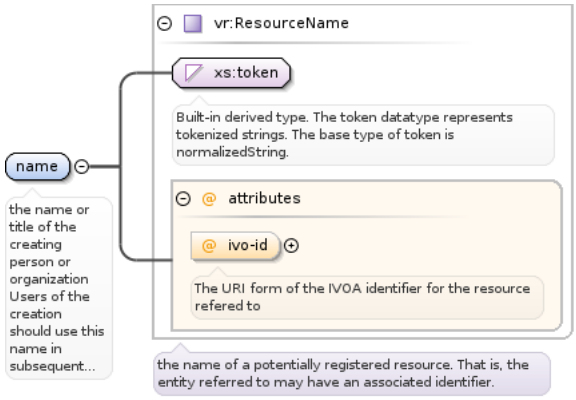
| | |
|---|---|
| Namespace | No namespace |
| Annotations | Entity (e.g. person or organisation) responsible for making the resource available |
| Diagram |  |
| Type | vr:ResourceName |
| Properties | content: complex |
| Attributes | **QName** / **Type** / **Fixed** / **Default** / **Use**<br>**ivo-id** / vr:IdentifierURI / / / optional<br>The URI form of the IVOA identifier for the resource refered to |
| Source | <xs:element name="publisher" type="vr:ResourceName"><br><xs:annotation><br><xs:appinfo><br><vm:dcterm>Publisher</vm:dcterm><br></xs:appinfo><br><xs:documentation>Entity (e.g. person or organisation) responsible for making the resource available</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Element vr:Curation / creator

| | |
|---|---|
| Namespace | No namespace |
| Annotations | The entity (e.g. person or organisation) primarily responsible for creating the content or constitution of the resource.<br><br>A logo need only be provided for the first occurance. When multiple logos are supplied via multiple creator elements, the application is free to choose which to use. |
| Diagram |  |
| Type | vr:Creator |

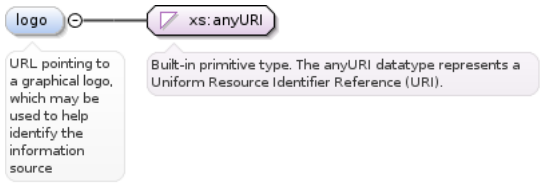
| | |
|---|---|
| Properties | content: complex<br>minOccurs: 0<br>maxOccurs: unbounded |
| Model | name , logo{0,1} |
| Children | logo, name |
| Instance | <creator><br>  <name ivo-id="">{1,1}</name><br>  <logo>{0,1}</logo><br></creator> |
| Source | <xs:element name="creator" type="vr:Creator" minOccurs="0" maxOccurs="unbounded"><br>  <xs:annotation><br>  <xs:appinfo><br>  <vm:dcterm>Creator</vm:dcterm><br>  </xs:appinfo><br>  <xs:documentation>The entity (e.g. person or organisation) primarily responsible for creating the content or constitution of the resource.</xs:documentation><br>  <xs:documentation>A logo need only be provided for the first occurance. When multiple logos are supplied via multiple creator elements, the application is free to choose which to use.</xs:documentation><br>  </xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Element vr:Creator / name

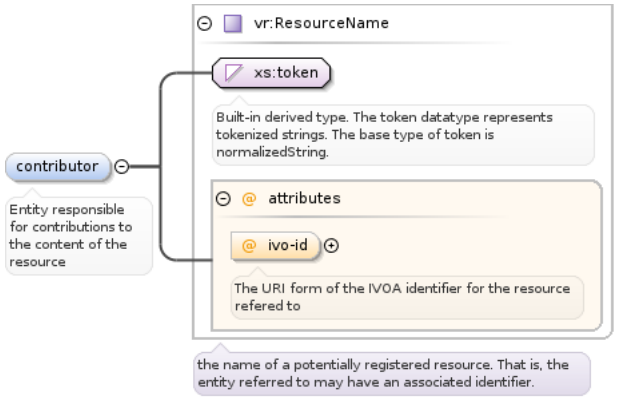
| | |
|---|---|
| Namespace | No namespace |
| Annotations | the name or title of the creating person or organization<br><br>Users of the creation should use this name in subsequent credits and acknowledgements. |
| Diagram |  |
| Type | vr:ResourceName |
| Properties | content: complex |
| Attributes | QName: ivo-id; Type: vr:IdentifierURI; Fixed: ; Default: ; Use: optional<br>The URI form of the IVOA identifier for the resource refered to |
| Source | <xs:element name="name" type="vr:ResourceName"><br>  <xs:annotation><br>  <xs:documentation>the name or title of the creating person or organization</xs:documentation><br>  <xs:documentation>Users of the creation should use this name in subsequent credits and acknowledgements.</xs:documentation><br>  </xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Element vr:Creator / logo

| | |
|---|---|
| Namespace | No namespace |
| Annotations | URL pointing to a graphical logo, which may be used to help |

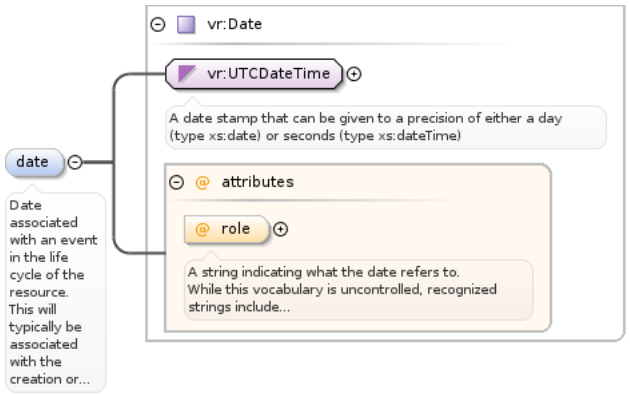
| | |
|---|---|
| | identify the information source |
| Diagram |  |
| Type | xs:anyURI |
| Properties | content: simple<br>minOccurs: 0 |
| Source | <xs:element name="logo" type="xs:anyURI" minOccurs="0"><br><xs:annotation><br><xs:documentation>URL pointing to a graphical logo, which may be used to help identify the information source</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Element vr:Curation / contributor

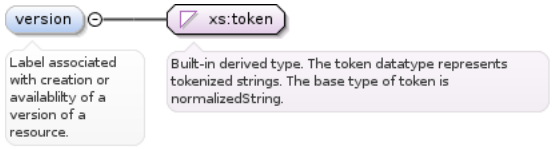
| | |
|---|---|
| Namespace | No namespace |
| Annotations | Entity responsible for contributions to the content of the resource |
| Diagram |  |
| Type | vr:ResourceName |
| Properties | content: complex<br>minOccurs: 0<br>maxOccurs: unbounded |
| Attributes | QName: ivo-id; Type: vr:IdentifierURI; Fixed: ; Default: ; Use: optional<br>The URI form of the IVOA identifier for the resource refered to |
| Source | <xs:element name="contributor" type="vr:ResourceName" minOccurs="0" maxOccurs="unbounded"><br><xs:annotation><br><xs:appinfo><br><vm:dcterm>Contributor</vm:dcterm><br></xs:appinfo><br><xs:documentation>Entity responsible for contributions to the content of the resource</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Element vr:Curation / date

| | |
|---|---|
| Namespace | No namespace |
| Annotations | Date associated with an event in the life cycle of the resource. |

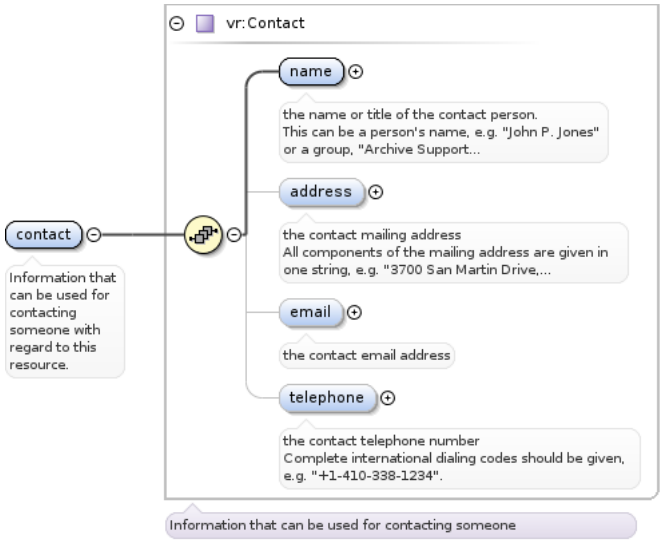
| | |
|---|---|
| | This will typically be associated with the creation or availability (i.e., most recent release or version) of the resource. Use the role attribute to clarify. |
| Diagram |  |
| Type | vr:Date |
| Type hierarchy | • xs:anySimpleType<br>  • vr:UTCDateTime<br>  • vr:Date |
| Properties | content: complex<br>minOccurs: 0<br>maxOccurs: unbounded |
| Attributes | **QName**: **role**; **Type**: xs:string; **Fixed**: ; **Default**: representative; **Use**: optional<br>A string indicating what the date refers to.<br><br>While this vocabulary is uncontrolled, recognized strings include "creation", indicating the date that the resource itself was created, and "update", indicating when the resource was updated last. The default value, "representative", means that the date is a rough representation of the time coverage of the resource.<br><br>Note that this date refers to the resource; dates describing the metadata description of the resource are handled by the "created" and "updated" attributes of the Resource element. |
| Source | <xs:element name="date" type="vr:Date" minOccurs="0" maxOccurs="unbounded"><br><xs:annotation><br><xs:appinfo><br><vm:dcterm>Date</vm:dcterm><br></xs:appinfo><br><xs:documentation>Date associated with an event in the life cycle of the resource.</xs:documentation><br><xs:documentation>This will typically be associated with the creation or availability (i.e., most recent release or version) of the resource. Use the role attribute to clarify.</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Element vr:Curation / version

| | |
|---|---|
| Namespace | No namespace |
| Annotations | Label associated with creation or availablilty of a version of a resource. |
| Diagram |  |
| Type | xs:token |

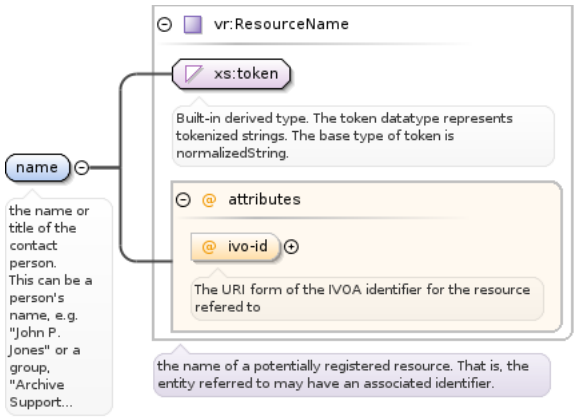
| | |
|---|---|
| Properties | content: simple<br>minOccurs: 0 |
| Source | <xs:element name="version" type="xs:token" minOccurs="0"><br><xs:annotation><br><xs:documentation>Label associated with creation or availablilty of a version of a resource.</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Element vr:Curation / contact

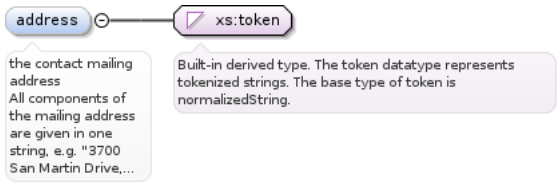
| | |
|---|---|
| Namespace | No namespace |
| Annotations | Information that can be used for contacting someone with regard to this resource. |
| Diagram |  |
| Type | vr:Contact |
| Properties | content: complex<br>maxOccurs: unbounded |
| Model | name , address{0,1} , email{0,1} , telephone{0,1} |
| Children | address, email, name, telephone |
| Instance | <contact><br><name ivo-id="">{1,1}</name><br><address>{0,1}</address><br><email>{0,1}</email><br><telephone>{0,1}</telephone><br></contact> |
| Source | <xs:element name="contact" type="vr:Contact" maxOccurs="unbounded"><br><xs:annotation><br><xs:documentation>Information that can be used for contacting someone with regard to this resource.</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Element vr:Contact / name

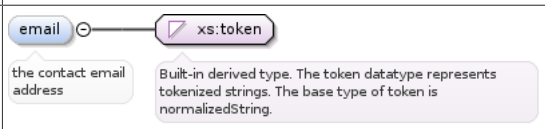
| | |
|---|---|
| Namespace | No namespace |
| Annotations | the name or title of the contact person.<br><br>This can be a person's name, e.g. "John P. Jones" or a group, "Archive Support Team". |

| | |
|---|---|
| Diagram |  |
| Type | vr:ResourceName |
| Properties | content: complex |
| Attributes | **QName** \| **Type** \| **Fixed** \| **Default** \| **Use**<br>**ivo-id** \| vr:IdentifierURI \| \| \| optional<br>The URI form of the IVOA identifier for the resource refered to |
| Source | `<xs:element name="name" type="vr:ResourceName">`<br>`  <xs:annotation>`<br>`  <xs:documentation>the name or title of the contact person.</xs:documentation>`<br>`  <xs:documentation>This can be a person's name, e.g. "John P. Jones" or a group, "Archive Support Team".</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Element vr:Contact / address

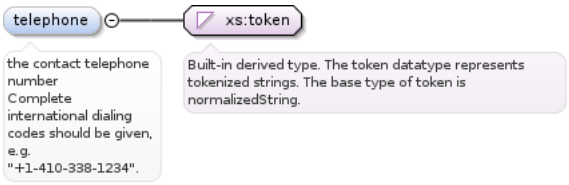
| | |
|---|---|
| Namespace | No namespace |
| Annotations | the contact mailing address<br><br>All components of the mailing address are given in one string, e.g. "3700 San Martin Drive, Baltimore, MD 21218 USA". |
| Diagram |  |
| Type | xs:token |
| Properties | content: simple<br>minOccurs: 0 |
| Source | `<xs:element name="address" type="xs:token" minOccurs="0">`<br>`  <xs:annotation>`<br>`  <xs:documentation>the contact mailing address</xs:documentation>`<br>`  <xs:documentation>All components of the mailing address are given in one string, e.g. "3700 San Martin Drive, Baltimore, MD 21218 USA".</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Element vr:Contact / email

| | |
|---|---|
| Namespace | No namespace |
| Annotations | the contact email address |
| Diagram |  |

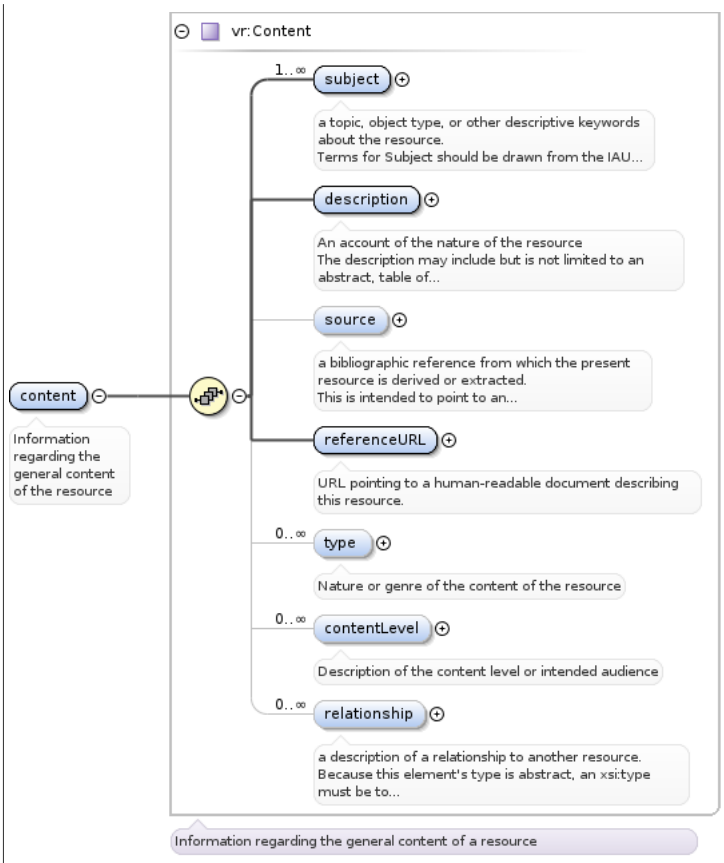
| | |
|---|---|
| Type | xs:token |
| Properties | content: simple<br>minOccurs: 0 |
| Source | <xs:element name="email" type="xs:token" minOccurs="0"><br><xs:annotation><br><xs:documentation>the contact email address</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Element vr:Contact / telephone

| | |
|---|---|
| Namespace | No namespace |
| Annotations | the contact telephone number<br><br>Complete international dialing codes should be given, e.g. "+1-410-338-1234". |
| Diagram |  |
| Type | xs:token |
| Properties | content: simple<br>minOccurs: 0 |
| Source | <xs:element name="telephone" type="xs:token" minOccurs="0"><br><xs:annotation><br><xs:documentation>the contact telephone number</xs:documentation><br><xs:documentation>Complete international dialing codes should be given, e.g.<br>"+1-410-338-1234".</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

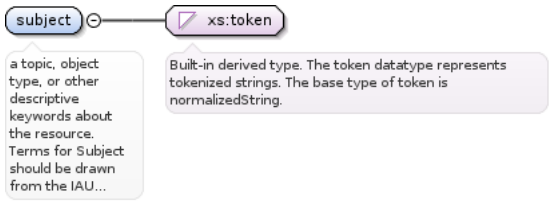
## Element vr:Resource / content

| | |
|---|---|
| Namespace | No namespace |
| Annotations | Information regarding the general content of the resource |

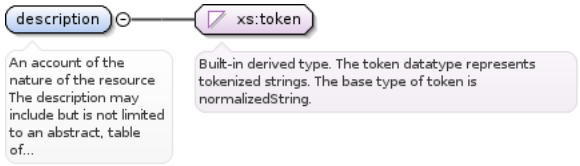
| | |
|---|---|
| Diagram |  |
| Type | vr:Content |
| Properties | content: complex |
| Model | subject+ , description , source{0,1} , referenceURL , type* , contentLevel* , relationship* |
| Children | contentLevel, description, referenceURL, relationship, source, subject, type |
| Instance | <pre><content><br>  <subject>{1,unbounded}</subject><br>  <description>{1,1}</description><br>  <source format="">{0,1}</source><br>  <referenceURL>{1,1}</referenceURL><br>  <type>{0,unbounded}</type><br>  <contentLevel>{0,unbounded}</contentLevel><br>  <relationship>{0,unbounded}</relationship><br></content></pre> |
| Source | <pre><xs:element name="content" type="vr:Content"><br>  <xs:annotation><br>  <xs:documentation>Information regarding the general content of the resource</<br>xs:documentation><br>  </xs:annotation><br></xs:element></pre> |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Element vr:Content / subject

| | |
|---|---|
| Namespace | No namespace |
| Annotations | a topic, object type, or other descriptive keywords about the resource.<br><br>Terms for Subject should be drawn from the IAU Astronomy Thesaurus (http://msowww.anu.edu.au/library/thesaurus/). |

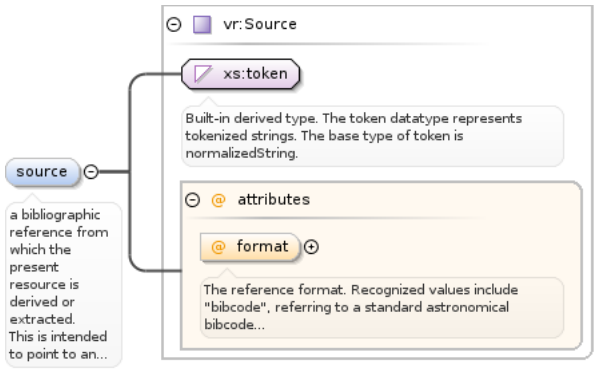
| | |
|---|---|
| Diagram |  |
| Type | xs:token |
| Properties | content: simple<br>maxOccurs: unbounded |
| Source | `<xs:element name="subject" type="xs:token" maxOccurs="unbounded">`<br>`  <xs:annotation>`<br>`  <xs:appinfo>`<br>`  <vm:dcterm>Subject</vm:dcterm>`<br>`  </xs:appinfo>`<br>`  <xs:documentation>a topic, object type, or other descriptive keywords about the resource.</xs:documentation>`<br>`  <xs:documentation>Terms for Subject should be drawn from the IAU Astronomy Thesaurus (http://msowww.anu.edu.au/library/thesaurus/).</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Element vr:Content / description

| | |
|---|---|
| Namespace | No namespace |
| Annotations | An account of the nature of the resource<br><br>The description may include but is not limited to an abstract, table of contents, reference to a graphical representation of content or a free-text account of the content. |
| Diagram |  |
| Type | xs:token |
| Properties | content: simple |
| Source | `<xs:element name="description" type="xs:token">`<br>`  <xs:annotation>`<br>`  <xs:appinfo>`<br>`  <vm:dcterm>Description</vm:dcterm>`<br>`  </xs:appinfo>`<br>`  <xs:documentation>An account of the nature of the resource</xs:documentation>`<br>`  <xs:documentation>The description may include but is not limited to an abstract, table of contents, reference to a graphical representation of content or a free-text account of the content.</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Element vr:Content / source

| | |
|---|---|
| Namespace | No namespace |
| Annotations | a bibliographic reference from which the present resource is derived or extracted.<br><br>This is intended to point to an article in the published literature. An ADS Bibcode is recommended as a value when available. |

| | |
|---|---|
| Diagram |  |
| Type | vr:Source |
| Properties | content: complex<br>minOccurs: 0 |

Attributes

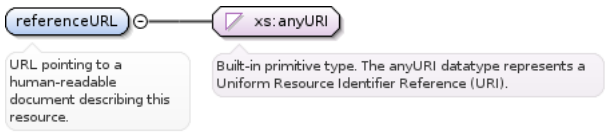
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **format** | xs:string | | | optional |
| | The reference format. Recognized values include "bibcode", referring to a standard astronomical bibcode (http://cdsweb.u-strasbg.fr/simbad/refcode.html). | | | |

Source

```
<xs:element name="source" type="vr:Source" minOccurs="0">
  <xs:annotation>
    <xs:appinfo>
      <vm:dcterm>Source</vm:dcterm>
    </xs:appinfo>
    <xs:documentation>a bibliographic reference from which the present resource is derived
 or extracted.</xs:documentation>
    <xs:documentation>This is intended to point to an article in the published literature.
 An ADS Bibcode is recommended as a value when available.</xs:documentation>
  </xs:annotation>
</xs:element>
```

Schema location: http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd

## Element vr:Content / referenceURL

| | |
|---|---|
| Namespace | No namespace |
| Annotations | URL pointing to a human-readable document describing this resource. |
| Diagram |  |
| Type | xs:anyURI |
| Properties | content: simple |

Source

```
<xs:element name="referenceURL" type="xs:anyURI">
  <xs:annotation>
    <xs:documentation>URL pointing to a human-readable document describing this
 resource.</xs:documentation>
  </xs:annotation>
</xs:element>
```

Schema location: http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd

## Element vr:Content / type

| | |
|---|---|
| Namespace | No namespace |
| Annotations | Nature or genre of the content of the resource |
| Diagram |  |
| Type | vr:Type |

| | | | |
|---|---|---|---|
| Properties | content: | simple | |
| | minOccurs: | 0 | |
| | maxOccurs: | unbounded | |
| Facets | enumeration | Other | resource that does not fall into any of the category names currently defined. |
| | enumeration | Archive | Collection of pointed observations |
| | enumeration | Bibliography | Collection of bibliographic reference, abstracts, and publications |
| | enumeration | Catalog | Collection of derived data, primarily in tabular form |
| | enumeration | Journal | Collection of scholarly publications under common editorial policy |
| | enumeration | Library | Collection of published materials (journals, books, etc.) |
| | enumeration | Simulation | Theoretical simulation or model |
| | enumeration | Survey | Collection of observations covering substantial and contiguous areas of the sky |
| | enumeration | Transformation | A service that transforms data |
| | enumeration | Education | Collection of materials appropriate for educational use, such as teaching resources, curricula, etc. |
| | enumeration | Outreach | Collection of materials appropriate for public outreach, such as press releases and photo galleries |
| | enumeration | EPOResource | Collection of materials that may be suitable for EPO products but which are not in final product form, as in Type Outreach or Type Education. EPOResource would apply, e.g., to archives with easily accessed preview images or to surveys with easy-to-use images. |
| | enumeration | Animation | Animation clips of astronomical phenomena |
| | enumeration | Artwork | Artists' renderings of astronomical phenomena or objects |
| | enumeration | Background | Background information on astronomical phenomena or objects |
| | enumeration | BasicData | Compilations of basic astronomical facts about objects, such as approximate distance or membership in constellation. |
| | enumeration | Historical | Historical information about astronomical objects |
| | enumeration | Photographic | Publication-quality photographs of astronomical objects |
| | enumeration | Press | Press releases about astronomical objects |
| | enumeration | Organisation | An organization that is a publisher or curator of other resources. |
| | enumeration | Project | A project that is a publisher or curator of other resources |
| | enumeration | Registry | a query service for which response is a structured description of resources. |

Source

```
<xs:element name="type" type="vr:Type" minOccurs="0" maxOccurs="unbounded">
  <xs:annotation>
    <xs:appinfo>
      <vm:dcterm>Type</vm:dcterm>
    </xs:appinfo>
    <xs:documentation>Nature or genre of the content of the resource</xs:documentation>
  </xs:annotation>
</xs:element>
```

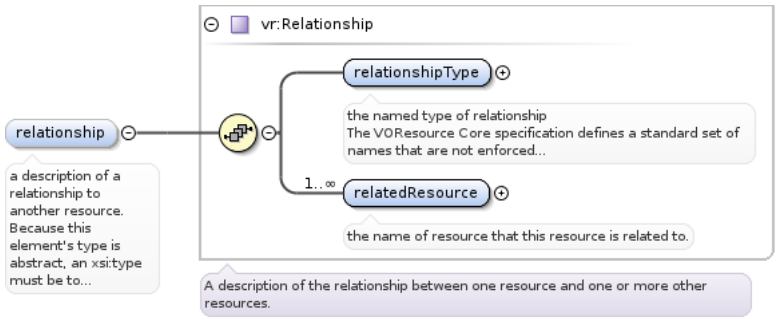
| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Element vr:Content / contentLevel

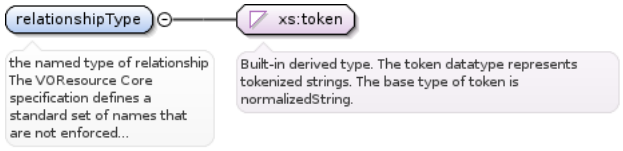
| | | | |
|---|---|---|---|
| Namespace | No namespace | | |
| Annotations | Description of the content level or intended audience | | |
| Diagram |  | | |
| Type | vr:ContentLevel | | |
| Properties | content: | simple | |
| | minOccurs: | 0 | |
| | maxOccurs: | unbounded | |
| Facets | enumeration | General | Resource provides information appropriate for all users |
| | enumeration | Elementary Education | Resource provides information appropriate for use in elementary education (e.g. approximate ages 6-11) |
| | enumeration | Middle School Education | Resource provides information appropriate for use in middle school education (e.g. approximate ages 11-14) |
| | enumeration | Secondary Education | Resource provides information appropriate for use in elementary education (e.g. approximate ages 14-18) |
| | enumeration | Community College | Resource provides information appropriate for use in community/junior college or early university education. |
| | enumeration | University | Resource provides information appropriate for use in university education |
| | enumeration | Research | Resource provides information appropriate for supporting scientific research. |
| | enumeration | Amateur | Resource provides information of interest to amateur astronomers. |
| | enumeration | Informal Education | Resource provides information appropriate for education at museums, planetariums, and other centers of informal learning. |
| Source | <xs:element name="contentLevel" type="vr:ContentLevel" minOccurs="0" maxOccurs="unbounded"><br><xs:annotation><br><xs:appinfo><br><vm:dcterm>Subject</vm:dcterm><br><vm:dcterm>Subject.ContentLevel</vm:dcterm><br></xs:appinfo><br><xs:documentation>Description of the content level or intended audience</xs:documentation><br></xs:annotation><br></xs:element> | | |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd | | |

## Element vr:Content / relationship

| | |
|---|---|
| Namespace | No namespace |
| Annotations | a description of a relationship to another resource.<br><br>Because this element's type is abstract, an xsi:type must be to indicate the set of relationship types that are valid. |

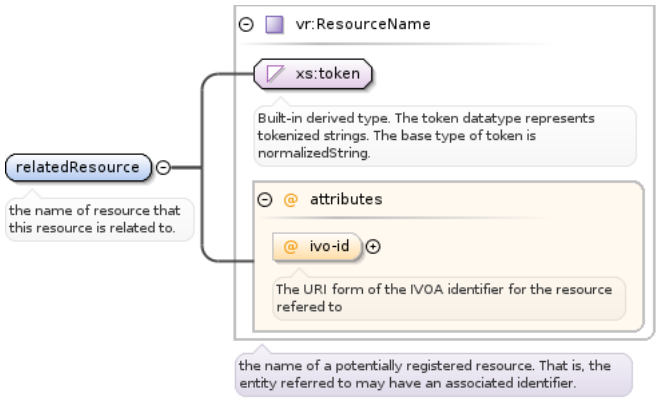
| | |
|---|---|
| Diagram |  |
| Type | vr:Relationship |
| Properties | content: complex<br>minOccurs: 0<br>maxOccurs: unbounded |
| Model | relationshipType , relatedResource+ |
| Children | relatedResource, relationshipType |
| Instance | `<relationship>`<br>`  <relationshipType>{1,1}</relationshipType>`<br>`  <relatedResource ivo-id="">{1,unbounded}</relatedResource>`<br>`</relationship>` |
| Source | `<xs:element name="relationship" type="vr:Relationship" minOccurs="0"`<br>` maxOccurs="unbounded">`<br>`  <xs:annotation>`<br>`  <xs:documentation>a description of a relationship to another resource.</`<br>`xs:documentation>`<br>`  <xs:documentation>Because this element's type is abstract, an xsi:type must be to`<br>` indicate the set of relationship types that are valid.</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Element vr:Relationship / relationshipType

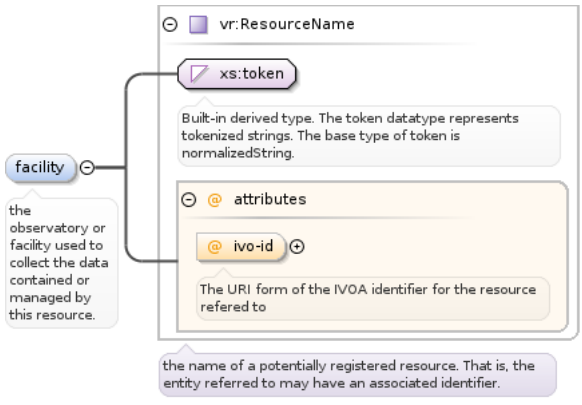
| | |
|---|---|
| Namespace | No namespace |
| Annotations | the named type of relationship<br><br>The VOResource Core specification defines a standard<br>set of names that are not enforced by this schema,<br>but are otherwise required by the spec. |
| Diagram |  |
| Type | xs:token |
| Properties | content: simple |
| Source | `<xs:element name="relationshipType" type="xs:token">`<br>`  <xs:annotation>`<br>`  <xs:documentation>the named type of relationship</xs:documentation>`<br>`  <xs:documentation>The VOResource Core specification defines a standard set of`<br>` names that are not enforced by this schema, but are otherwise required by the spec.</`<br>`xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:element>` |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Element vr:Relationship / relatedResource

| | |
|---|---|
| Namespace | No namespace |
| Annotations | the name of resource that this resource is related to. |

| | |
|---|---|
| Diagram |  |
| Type | vr:ResourceName |
| Properties | content: complex<br>minOccurs: 1<br>maxOccurs: unbounded |
| Attributes | **QName** \| **Type** \| **Fixed** \| **Default** \| **Use**<br>**ivo-id** \| vr:IdentifierURI \| \| \| optional<br>The URI form of the IVOA identifier for the resource refered to |
| Source | `<xs:element name="relatedResource" type="vr:ResourceName" minOccurs="1" maxOccurs="unbounded"> <xs:annotation> <xs:documentation>the name of resource that this resource is related to.</xs:documentation> </xs:annotation> </xs:element>` |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

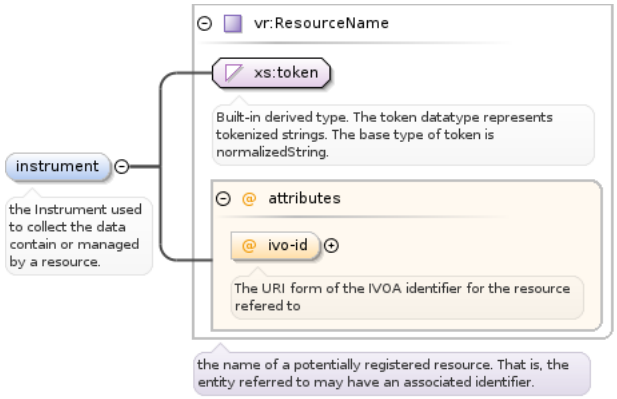
## Element vr:Organisation / facility

| | |
|---|---|
| Namespace | No namespace |
| Annotations | the observatory or facility used to collect the data contained or managed by this resource. |
| Diagram |  |
| Type | vr:ResourceName |
| Properties | content: complex<br>minOccurs: 0<br>maxOccurs: unbounded |
| Attributes | **QName** \| **Type** \| **Fixed** \| **Default** \| **Use**<br>**ivo-id** \| vr:IdentifierURI \| \| \| optional<br>The URI form of the IVOA identifier for the resource refered to |
| Source | `<xs:element name="facility" type="vr:ResourceName" minOccurs="0" maxOccurs="unbounded"> <xs:annotation> <xs:appinfo>` |

```
      <vm:dcterm>Subject</vm:dcterm>
    </xs:appinfo>
    <xs:documentation>the observatory or facility used to collect the data contained or
 managed by this resource.</xs:documentation>
  </xs:annotation>
</xs:element>
```

| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |
|---|---|

## Element `vr:Organisation / instrument`

| Namespace | No namespace |
|---|---|
| Annotations | `the Instrument used to collect the data contain or managed by a resource.` |
| Diagram |   |
| Type | vr:ResourceName |

| Properties | | |
|---|---|---|
| | content: | `complex` |
| | minOccurs: | `0` |
| | maxOccurs: | `unbounded` |

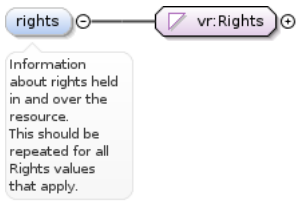
| Attributes | QName | Type | Fixed | Default | Use |
|---|---|---|---|---|---|
| | **ivo-id** | vr:IdentifierURI | | | optional |
| | | `The URI form of the IVOA identifier for the resource refered to` | | | |

Source

```
<xs:element name="instrument" type="vr:ResourceName" minOccurs="0" maxOccurs="unbounded">
  <xs:annotation>
    <xs:appinfo>
      <vm:dcterm>Subject</vm:dcterm>
      <vm:dcterm>Subject.Instrument</vm:dcterm>
    </xs:appinfo>
    <xs:documentation>the Instrument used to collect the data contain or managed by a
 resource.</xs:documentation>
  </xs:annotation>
</xs:element>
```

| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |
|---|---|

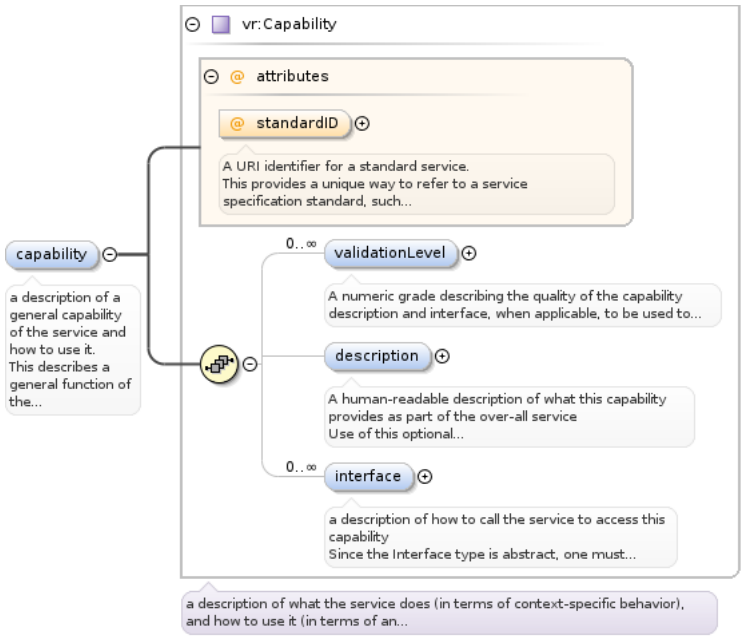
## Element `vr:Service / rights`

| Namespace | No namespace |
|---|---|
| Annotations | `Information about rights held in and over the resource.`<br><br>`This should be repeated for all Rights values that apply.` |
| Diagram |   |
| Type | vr:Rights |

| Properties | | |
|---|---|---|
| | content: | `simple` |

| | | | |
|---|---|---|---|
| | minOccurs: | 0 | |
| | maxOccurs: | unbounded | |
| Facets | enumeration | public | unrestricted, public access is allowed without authentication. |
| | enumeration | secure | authenticated, public access is allowed. |
| | enumeration | proprietary | only proprietary access is allowed with authentication. |
| Source | <xs:element name="rights" type="vr:Rights" minOccurs="0" maxOccurs="unbounded"><br><xs:annotation><br><xs:appinfo><br><vm:dcterm>Rights</vm:dcterm><br></xs:appinfo><br><xs:documentation>Information about rights held in and over the resource.</xs:documentation><br><xs:documentation>This should be repeated for all Rights values that apply.</xs:documentation><br></xs:annotation><br></xs:element> | | |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd | | |

## Element vr:Service / capability

| | |
|---|---|
| Namespace | No namespace |
| Annotations | a description of a general capability of the service and how to use it.<br><br>This describes a general function of the service, usually in terms of a standard service protocol (e.g. SIA), but not necessarily.<br><br>A service can have many capabilities associated with it, each reflecting different aspects of the functionality it provides. |
| Diagram |  |
| Type | vr:Capability |
| Properties | content: complex<br>minOccurs: 0<br>maxOccurs: unbounded |
| Model | validationLevel* , description{0,1} , interface* |
| Children | description, interface, validationLevel |
| Instance | <capability standardID=""> |

```
  <validationLevel validatedBy="">{0,unbounded}</validationLevel>
  <description>{0,1}</description>
  <interface role="" version="1.0">{0,unbounded}</interface>
</capability>
```

Attributes

| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **standardID** | xs:anyURI | | | optional |
| | A URI identifier for a standard service.<br><br>This provides a unique way to refer to a service specification standard, such as a Simple Image Access service. The use of an IVOA identifier here implies that a VOResource description of the standard is registered and accessible. | | | |

Source

```
<xs:element name="capability" type="vr:Capability" minOccurs="0" maxOccurs="unbounded">
  <xs:annotation>
    <xs:documentation>a description of a general capability of the service and how to use
 it.</xs:documentation>
    <xs:documentation>This describes a general function of the service, usually in terms
 of a standard service protocol (e.g. SIA), but not necessarily.</xs:documentation>
    <xs:documentation>A service can have many capabilities associated with it, each
 reflecting different aspects of the functionality it provides.</xs:documentation>
  </xs:annotation>
</xs:element>
```

Schema location: http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd

## Element vr:Capability / validationLevel

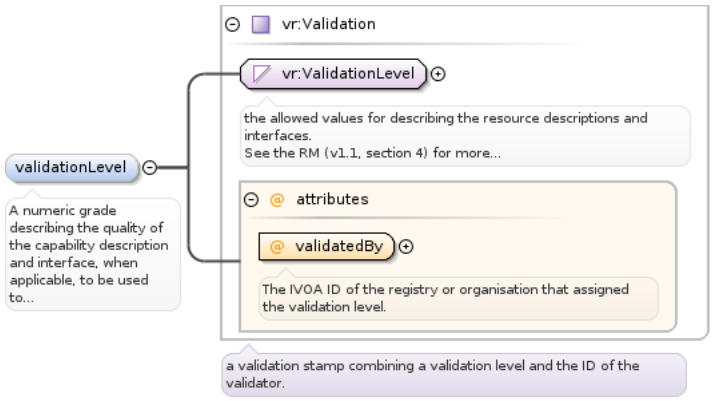
Namespace: No namespace

Annotations

```
A numeric grade describing the quality of the
capability description and interface, when applicable,
to be used to indicate the confidence an end-user
can put in the resource as part of a VO application
or research study.

See vr:ValidationLevel for an explanation of the
allowed levels.
```

Diagram




Type: vr:Validation

Type hierarchy

- xs:integer
  - vr:ValidationLevel
    - vr:Validation

Properties

| | |
|---|---|
| content: | complex |
| minOccurs: | 0 |
| maxOccurs: | unbounded |

Attributes

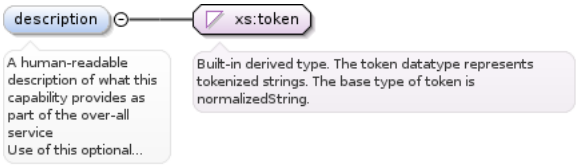
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **validatedBy** | vr:IdentifierURI | | | required |
| | The IVOA ID of the registry or organisation that assigned the validation level. | | | |

Source

```
<xs:element name="validationLevel" type="vr:Validation" minOccurs="0"
 maxOccurs="unbounded">
  <xs:annotation>
```

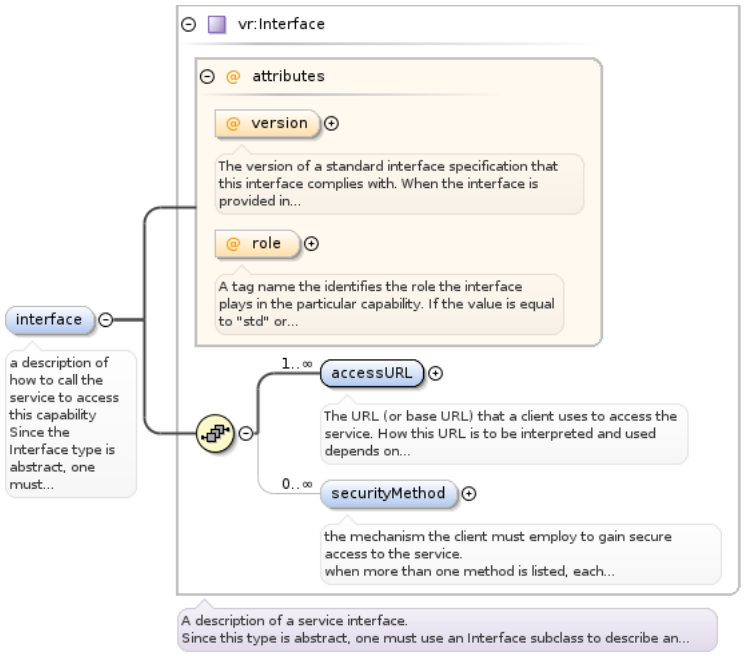
| | |
|---|---|
| | <xs:documentation>A numeric grade describing the quality of the capability description and interface, when applicable, to be used to indicate the confidence an end-user can put in the resource as part of a VO application or research study.</xs:documentation><br><xs:documentation>See vr:ValidationLevel for an explanation of the allowed levels.</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Element vr:Capability / description

| | |
|---|---|
| Namespace | No namespace |
| Annotations | A human-readable description of what this capability provides as part of the over-all service<br><br>Use of this optional element is especially encouraged when this capability is non-standard and is one of several capabilities listed. |
| Diagram |  |
| Type | xs:token |
| Properties | content: simple<br>minOccurs: 0 |
| Source | <xs:element name="description" type="xs:token" minOccurs="0"><br><xs:annotation><br><xs:documentation>A human-readable description of what this capability provides as part of the over-all service</xs:documentation><br><xs:documentation>Use of this optional element is especially encouraged when this capability is non-standard and is one of several capabilities listed.</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Element vr:Capability / interface

| | |
|---|---|
| Namespace | No namespace |
| Annotations | a description of how to call the service to access this capability<br><br>Since the Interface type is abstract, one must describe the interface using a subclass of Interface, denoting it via xsi:type.<br><br>Multiple occurances can describe different interfaces to the logically same capability--i.e. data or functionality. That is, the inputs accepted and the output provides should be logically the same. For example, a WebBrowser interface given in addition to a WebService interface would simply provide an interactive, human-targeted interface to the underlying WebService interface. |

| | |
|---|---|
| Diagram |  |
| Type | vr:Interface |
| Properties | content: complex<br>minOccurs: 0<br>maxOccurs: unbounded |
| Model | accessURL+ , securityMethod* |
| Children | accessURL, securityMethod |
| Instance | <pre><interface role="" version="1.0"><br>  <accessURL use="">{1,unbounded}</accessURL><br>  <securityMethod standardID="">{0,unbounded}</securityMethod><br></interface></pre> |

Attributes

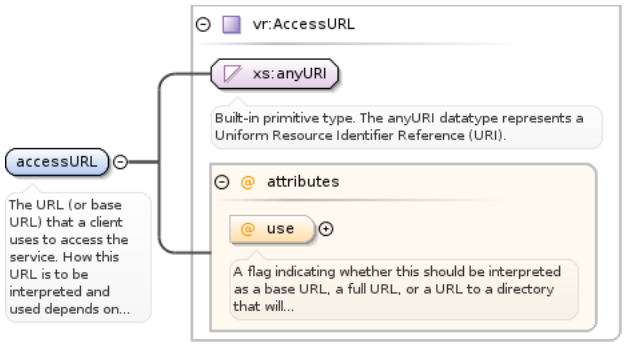
| QName | Type | Fixed | Default | Use |
|---|---|---|---|---|
| **role** | xs:NMTOKEN | | | optional |
| | A tag name the identifies the role the interface plays in the particular capability. If the value is equal to "std" or begins with "std:", then the interface refers to a standard interface defined by the standard referred to by the capability's standardID attribute.<br><br>For an interface complying with some registered standard (i.e. has a legal standardID), the role can be match against interface roles enumerated in standard resource record. The interface descriptions in the standard record can provide default descriptions so that such details need not be repeated here. | | | |
| **version** | xs:string | | 1.0 | optional |
| | The version of a standard interface specification that this interface complies with. When the interface is provided in the context of a Capability element, then the standard being refered to is the one identified by the Capability's standardID element. If the standardID is not provided, the meaning of this attribute is undefined. | | | |

Source

```
<xs:element name="interface" type="vr:Interface" minOccurs="0" maxOccurs="unbounded">
  <xs:annotation>
    <xs:documentation>a description of how to call the service to access this capability</
xs:documentation>
    <xs:documentation>Since the Interface type is abstract, one must describe the
 interface using a subclass of Interface, denoting it via xsi:type.</xs:documentation>
    <xs:documentation>Multiple occurances can describe different interfaces to the
 logically same capability--i.e. data or functionality. That is, the inputs accepted and
 the output provides should be logically the same. For example, a WebBrowser interface
 given in addition to a WebService interface would simply provide an interactive, human-
targeted interface to the underlying WebService interface.</xs:documentation>
  </xs:annotation>
```

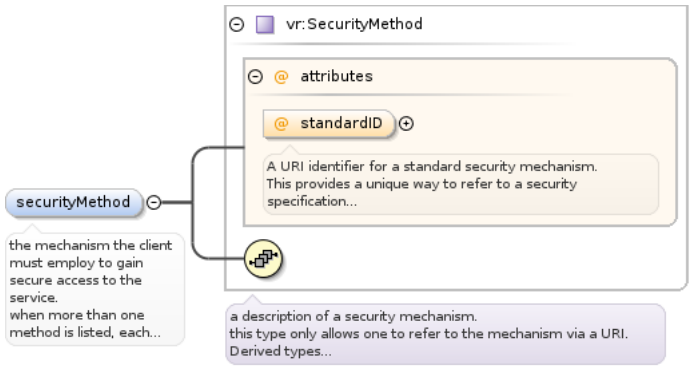
| | |
|---|---|
| | </xs:element> |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Element vr:Interface / accessURL

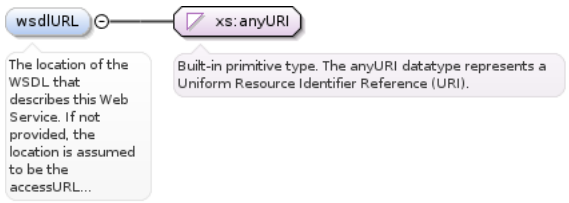
| | |
|---|---|
| Namespace | No namespace |
| Annotations | The URL (or base URL) that a client uses to access the service. How this URL is to be interpreted and used depends on the specific Interface subclass<br><br>When more than one URL is given, each represents an alternative (i.e. mirror) endpoint whose behavior is identical to all the other accessURLs listed.<br><br>Editor's note: this element assumes that all registered services are inherently web based. |
| Diagram |  |
| Type | vr:AccessURL |
| Properties | content: complex<br>minOccurs: 1<br>maxOccurs: unbounded |
| Attributes | **QName**: **use**; **Type**: restriction of xs:NMTOKEN; **Fixed**: ; **Default**: ; **Use**: optional<br>A flag indicating whether this should be interpreted as a base URL, a full URL, or a URL to a directory that will produce a listing of files.<br><br>The default value assumed when one is not given depends on the context. |
| Source | <xs:element name="accessURL" type="vr:AccessURL" minOccurs="1" maxOccurs="unbounded"><br><xs:annotation><br><xs:documentation>The URL (or base URL) that a client uses to access the service. How this URL is to be interpreted and used depends on the specific Interface subclass</xs:documentation><br><xs:documentation>When more than one URL is given, each represents an alternative (i.e. mirror) endpoint whose behavior is identical to all the other accessURLs listed.</xs:documentation><br><xs:documentation>Editor's note: this element assumes that all registered services are inherently web based.</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Element vr:Interface / securityMethod

| | |
|---|---|
| Namespace | No namespace |
| Annotations | the mechanism the client must employ to gain secure access to the service.<br><br>when more than one method is listed, each one must be employed to gain access. |

| | |
|---|---|
| Diagram |  |
| Type | vr:SecurityMethod |
| Properties | content: complex<br>minOccurs: 0<br>maxOccurs: unbounded |
| Model | |
| Attributes | **QName** / **Type** / **Fixed** / **Default** / **Use**<br>**standardID** / xs:anyURI / / / optional<br>A URI identifier for a standard security mechanism.<br><br>This provides a unique way to refer to a security specification standard. The use of an IVOA identifier here implies that a VOResource description of the standard is registered and accessible. |
| Source | <xs:element name="securityMethod" type="vr:SecurityMethod" minOccurs="0" maxOccurs="unbounded"><br><xs:annotation><br><xs:documentation>the mechanism the client must employ to gain secure access to the service.</xs:documentation><br><xs:documentation>when more than one method is listed, each one must be employed to gain access.</xs:documentation><br></xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Element vr:WebService / wsdlURL

| | |
|---|---|
| Namespace | No namespace |
| Annotations | The location of the WSDL that describes this Web Service. If not provided, the location is assumed to be the accessURL with "?wsdl" appended.<br><br>Multiple occurances should represent mirror copies of the same WSDL file. |
| Diagram |  |
| Type | xs:anyURI |
| Properties | content: simple<br>minOccurs: 0<br>maxOccurs: unbounded |
| Source | <xs:element name="wsdlURL" type="xs:anyURI" minOccurs="0" maxOccurs="unbounded"><br><xs:annotation><br><xs:documentation>The location of the WSDL that describes this Web Service. If not provided, the location is assumed to be the accessURL with "?wsdl" appended.</xs:documentation><br><xs:documentation>Multiple occurances should represent mirror copies of the same WSDL file.</xs:documentation> |

| | |
|---|---|
| | </xs:annotation><br></xs:element> |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Attribute(s)

### Attribute vr:ResourceName / @ivo-id

| | | |
|---|---|---|
| Namespace | No namespace | |
| Annotations | The URI form of the IVOA identifier for the resource refered to | |
| Type | vr:IdentifierURI | |
| Properties | content: | simple |
| Facets | pattern | ivo://[\w\d][\w\d\-_<br>\.!~*'\(\)\+=]{2,}(/<br>[\w\d\-_\.!~*'\(\)\<br>+=]+(/[\w\d\-_\.!~<br>*'\(\)\+=]+)*)? |
| Used by | Complex Type | vr:ResourceName |
| Source | <xs:attribute name="ivo-id" type="vr:IdentifierURI"><br><xs:annotation><br><xs:documentation>The URI form of the IVOA identifier for the resource refered to</<br>xs:documentation><br></xs:annotation><br></xs:attribute> | |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd | |

### Attribute vr:Source / @format

| | | |
|---|---|---|
| Namespace | No namespace | |
| Annotations | The reference format. Recognized values include "bibcode",<br>referring to a standard astronomical bibcode<br>(http://cdsweb.u-strasbg.fr/simbad/refcode.html). | |
| Type | xs:string | |
| Properties | content: | simple |
| Used by | Complex Type | vr:Source |
| Source | <xs:attribute name="format" type="xs:string"><br><xs:annotation><br><xs:documentation>The reference format. Recognized values include "bibcode", referring<br>to a standard astronomical bibcode (http://cdsweb.u-strasbg.fr/simbad/refcode.html).</<br>xs:documentation><br></xs:annotation><br></xs:attribute> | |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd | |

### Attribute vr:AccessURL / @use

| | | |
|---|---|---|
| Namespace | No namespace | |
| Annotations | A flag indicating whether this should be interpreted as a base<br>URL, a full URL, or a URL to a directory that will produce a<br>listing of files.<br><br>The default value assumed when one is not given depends on the<br>context. | |
| Type | restriction of xs:NMTOKEN | |
| Properties | content: | simple |
| Facets | enumeration: full | Assume a full URL--that is, one that can be<br>invoked<br>directly without alteration. This usually<br>returns a<br>single document or file. |
| | enumeration: base | Assume a base URL--that is, one requiring an<br>extra portion<br>to be appended before being invoked. |

| | | | |
|---|---|---|---|
| | enumeration | dir | Assume URL points to a directory that will return a listing of files. |
| Used by | Complex Type | vr:AccessURL | |

Source

```
<xs:attribute name="use">
  <xs:annotation>
    <xs:documentation>A flag indicating whether this should be interpreted as a base URL, a full URL, or a URL to a directory that will produce a listing of files.</xs:documentation>
    <xs:documentation>The default value assumed when one is not given depends on the context.</xs:documentation>
  </xs:annotation>
  <xs:simpleType>
    <xs:restriction base="xs:NMTOKEN">
      <xs:enumeration value="full">
        <xs:annotation>
          <xs:documentation>Assume a full URL--that is, one that can be invoked directly without alteration. This usually returns a single document or file.</xs:documentation>
        </xs:annotation>
      </xs:enumeration>
      <xs:enumeration value="base">
        <xs:annotation>
          <xs:documentation>Assume a base URL--that is, one requiring an extra portion to be appended before being invoked.</xs:documentation>
        </xs:annotation>
      </xs:enumeration>
      <xs:enumeration value="dir">
        <xs:annotation>
          <xs:documentation>Assume URL points to a directory that will return a listing of files.</xs:documentation>
        </xs:annotation>
      </xs:enumeration>
    </xs:restriction>
  </xs:simpleType>
</xs:attribute>
```

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Attribute STCReference / @id

| | | |
|---|---|---|
| Namespace | No namespace | |
| Type | xs:ID | |
| Properties | use: | optional |
| Used by | Attribute Group | STCReference |
| Source | `<xs:attribute name="id" type="xs:ID" use="optional"/>` | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute STCReference / @idref

| | | |
|---|---|---|
| Namespace | No namespace | |
| Type | xs:IDREF | |
| Properties | use: | optional |
| Used by | Attribute Group | STCReference |
| Source | `<xs:attribute name="idref" type="xs:IDREF" use="optional"/>` | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute STCReference / @ucd

| | | |
|---|---|---|
| Namespace | No namespace | |
| Type | xs:string | |
| Properties | use: | optional |
| Used by | Attribute Group | STCReference |
| Source | `<xs:attribute name="ucd" type="xs:string" use="optional"/>` | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute STCReference / @ID_type

| | |
|---|---|
| Namespace | No namespace |
| Type | xs:string |
| Properties | use: optional |
| Used by | Attribute Group STCReference |
| Source | `<xs:attribute name="ID_type" type="xs:string" use="optional"/>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Attribute STCReference / @IDREF_type

| | |
|---|---|
| Namespace | No namespace |
| Type | xs:string |
| Properties | use: optional |
| Used by | Attribute Group STCReference |
| Source | `<xs:attribute name="IDREF_type" type="xs:string" use="optional"/>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Attribute coordRefFrameType / @ref_frame_id

| | |
|---|---|
| Namespace | No namespace |
| Type | xs:IDREF |
| Properties | content: simple |
| Used by | Complex Type coordRefFrameType |
| Source | `<xs:attribute name="ref_frame_id" type="xs:IDREF"/>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Attribute coordinateType / @frame_id

| | |
|---|---|
| Namespace | No namespace |
| Type | xs:IDREF |
| Properties | use: optional |
| Used by | Complex Type coordinateType |
| Source | `<xs:attribute name="frame_id" type="xs:IDREF" use="optional"/>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Attribute coordFlavorType / @coord_naxes

| | |
|---|---|
| Namespace | No namespace |
| Type | restriction of xs:integer |
| Properties | default: 2 |
| Facets | maxInclusive 3<br>minInclusive 1 |
| Used by | Complex Type coordFlavorType |
| Source | `<xs:attribute name="coord_naxes" default="2">`<br>`  <xs:simpleType>`<br>`  <xs:restriction base="xs:integer">`<br>`  <xs:minInclusive value="1"/>`<br>`  <xs:maxInclusive value="3"/>`<br>`  </xs:restriction>`<br>`  </xs:simpleType>`<br>`</xs:attribute>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Attribute coordFlavorType / @handedness

| | |
|---|---|
| Namespace | No namespace |
| Type | restriction of xs:string |
| Properties | use: optional |
| Facets | enumeration left<br>enumeration right |
| Used by | Complex Type coordFlavorType |
| Source | <xs:attribute name="handedness" use="optional"><br><xs:simpleType><br><xs:restriction base="xs:string"><br><xs:enumeration value="left"/><br><xs:enumeration value="right"/><br></xs:restriction><br></xs:simpleType><br></xs:attribute> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Attribute geodType / @radius

| | |
|---|---|
| Namespace | No namespace |
| Type | xs:double |
| Properties | use: optional<br>default: 6378140 |
| Used by | Complex Type geodType |
| Source | <xs:attribute name="radius" type="xs:double" use="optional" default="6378140"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Attribute geodType / @inv_flattening

| | |
|---|---|
| Namespace | No namespace |
| Type | xs:double |
| Properties | use: optional<br>default: 298.257 |
| Used by | Complex Type geodType |
| Source | <xs:attribute name="inv_flattening" type="xs:double" use="optional" default="298.257"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Attribute geodType / @unit

| | |
|---|---|
| Namespace | No namespace |
| Type | posUnitType |
| Type hierarchy | • xs:string<br>• unitType<br>• posUnitType |
| Properties | use: optional<br>default: m |
| Facets | enumeration deg<br>enumeration deg deg m<br>enumeration deg deg Mpc<br>enumeration rad<br>enumeration h |

| | | |
|---|---|---|
| | enumeration | arcmin |
| | enumeration | arcsec |
| | enumeration | m |
| | enumeration | km |
| | enumeration | mm |
| | enumeration | AU |
| | enumeration | pc |
| | enumeration | kpc |
| | enumeration | Mpc |
| | enumeration | lyr |
| | enumeration | |
| Used by | Complex Type | geodType |
| Source | <xs:attribute name="unit" type="posUnitType" use="optional" default="m"/> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute coordsType / @coord_system_id

| | | |
|---|---|---|
| Namespace | No namespace | |
| Type | xs:IDREF | |
| Properties | use: | required |
| Used by | Complex Type | coordsType |
| Source | <xs:attribute name="coord_system_id" type="xs:IDREF" use="required"/> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute timeOffsetType / @unit

| | | |
|---|---|---|
| Namespace | No namespace | |
| Type | timeUnitType | |
| Type hierarchy | • xs:string<br>• unitType<br>• timeUnitType | |
| Properties | use: | optional |
| | default: | s |
| Facets | enumeration | s |
| | enumeration | h |
| | enumeration | d |
| | enumeration | a |
| | enumeration | yr |
| | enumeration | cy |
| | enumeration | |
| Used by | Complex Type | timeOffsetType |
| Source | <xs:attribute name="unit" type="timeUnitType" use="optional" default="s"/> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute double1Type / @time_unit

| | |
|---|---|
| Namespace | No namespace |
| Type | timeUnitType |
| Type hierarchy | • xs:string<br>• unitType |

| | |
|---|---|
| | • timeUnitType |
| Properties | use: optional |
| Facets | enumeration: s<br>enumeration: h<br>enumeration: d<br>enumeration: a<br>enumeration: yr<br>enumeration: cy<br>enumeration |
| Used by | Complex Type: double1Type |
| Source | `<xs:attribute name="time_unit" type="timeUnitType" use="optional"/>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Attribute double1Type / @pos_unit

| | |
|---|---|
| Namespace | No namespace |
| Type | posUnitType |
| Type hierarchy | • xs:string<br>• unitType<br>• posUnitType |
| Properties | use: optional |
| Facets | enumeration: deg<br>enumeration: deg deg m<br>enumeration: deg deg Mpc<br>enumeration: rad<br>enumeration: h<br>enumeration: arcmin<br>enumeration: arcsec<br>enumeration: m<br>enumeration: km<br>enumeration: mm<br>enumeration: AU<br>enumeration: pc<br>enumeration: kpc<br>enumeration: Mpc<br>enumeration: lyr<br>enumeration |
| Used by | Complex Type: double1Type |
| Source | `<xs:attribute name="pos_unit" type="posUnitType" use="optional"/>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Attribute double1Type / @pos_angle_unit

| | |
|---|---|
| Namespace | No namespace |
| Type | angleUnitType |
| Type hierarchy | • xs:string<br>• unitType<br>• angleUnitType |

| | | |
|---|---|---|
| Properties | use: | optional |
| Facets | enumeration | deg |
| | enumeration | rad |
| | enumeration | h |
| | enumeration | arcmin |
| | enumeration | arcsec |
| Used by | Complex Type | double1Type |
| Source | <xs:attribute name="pos_angle_unit" type="angleUnitType" use="optional"/> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute double1Type / @vel_time_unit

| | | |
|---|---|---|
| Namespace | No namespace | |
| Type | velTimeUnitType | |
| Type hierarchy | • xs:string<br>• unitType<br>• velTimeUnitType | |
| Properties | use: | optional |
| Facets | enumeration | s |
| | enumeration | h |
| | enumeration | d |
| | enumeration | a |
| | enumeration | yr |
| | enumeration | cy |
| Used by | Complex Type | double1Type |
| Source | <xs:attribute name="vel_time_unit" type="velTimeUnitType" use="optional"/> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute double1Type / @spectral_unit

| | | |
|---|---|---|
| Namespace | No namespace | |
| Type | spectralUnitType | |
| Type hierarchy | • xs:string<br>• unitType<br>• spectralUnitType | |
| Properties | use: | optional |
| Facets | enumeration | Hz |
| | enumeration | kHz |
| | enumeration | MHz |
| | enumeration | GHz |
| | enumeration | m |
| | enumeration | mm |
| | enumeration | um |
| | enumeration | nm |
| | enumeration | Angstrom |
| | enumeration | eV |
| | enumeration | keV |
| | enumeration | MeV |

| | | |
|---|---|---|
| | enumeration | GeV |
| | enumeration | TeV |
| Used by | Complex Type | double1Type |
| Source | <xs:attribute name="spectral_unit" type="spectralUnitType" use="optional"/> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute double1Type / @gen_unit

| | | |
|---|---|---|
| Namespace | No namespace | |
| Type | unitType | |
| Properties | use: | optional |
| Used by | Complex Type | double1Type |
| Source | <xs:attribute name="gen_unit" type="unitType" use="optional"/> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute timeCoordinateType / @coord_system_id

| | | |
|---|---|---|
| Namespace | No namespace | |
| Type | xs:IDREF | |
| Properties | use: | optional |
| Used by | Complex Type | timeCoordinateType |
| Source | <xs:attribute name="coord_system_id" type="xs:IDREF" use="optional"/> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute timeCoordinateType / @unit

| | | |
|---|---|---|
| Namespace | No namespace | |
| Type | timeUnitType | |
| Type hierarchy | • xs:string<br>• unitType<br>• timeUnitType | |
| Properties | use: | optional |
| | default: | s |
| Facets | enumeration | s |
| | enumeration | h |
| | enumeration | d |
| | enumeration | a |
| | enumeration | yr |
| | enumeration | cy |
| | enumeration | |
| Used by | Complex Type | timeCoordinateType |
| Source | <xs:attribute name="unit" type="timeUnitType" use="optional" default="s"/> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute spectralCoordinateType / @coord_system_id

| | | |
|---|---|---|
| Namespace | No namespace | |
| Type | xs:IDREF | |
| Properties | use: | optional |
| Used by | Complex Type | spectralCoordinateType |

| | |
|---|---|
| Source | <xs:attribute name="coord_system_id" type="xs:IDREF" use="optional"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Attribute spectralCoordinateType / @unit

| | | |
|---|---|---|
| Namespace | No namespace | |
| Type | spectralUnitType | |
| Type hierarchy | • xs:string<br>• unitType<br>• spectralUnitType | |
| Properties | use: | optional |
| Facets | enumeration | Hz |
| | enumeration | kHz |
| | enumeration | MHz |
| | enumeration | GHz |
| | enumeration | m |
| | enumeration | mm |
| | enumeration | um |
| | enumeration | nm |
| | enumeration | Angstrom |
| | enumeration | eV |
| | enumeration | keV |
| | enumeration | MeV |
| | enumeration | GeV |
| | enumeration | TeV |
| Used by | Complex Type | spectralCoordinateType |
| Source | <xs:attribute name="unit" type="spectralUnitType" use="optional"/> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute redshiftCoordinateType / @coord_system_id

| | | |
|---|---|---|
| Namespace | No namespace | |
| Type | xs:IDREF | |
| Properties | use: | optional |
| Used by | Complex Type | redshiftCoordinateType |
| Source | <xs:attribute name="coord_system_id" type="xs:IDREF" use="optional"/> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute redshiftCoordinateType / @unit

| | | |
|---|---|---|
| Namespace | No namespace | |
| Type | posUnitType | |
| Type hierarchy | • xs:string<br>• unitType<br>• posUnitType | |
| Properties | use: | optional |
| Facets | enumeration | deg |
| | enumeration | deg deg m |
| | enumeration | deg deg Mpc |

| | | |
|---|---|---|
| | enumeration | rad |
| | enumeration | h |
| | enumeration | arcmin |
| | enumeration | arcsec |
| | enumeration | m |
| | enumeration | km |
| | enumeration | mm |
| | enumeration | AU |
| | enumeration | pc |
| | enumeration | kpc |
| | enumeration | Mpc |
| | enumeration | lyr |
| | enumeration | |
| Used by | Complex Type | redshiftCoordinateType |
| Source | <xs:attribute name="unit" type="posUnitType" use="optional"/> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute redshiftCoordinateType / @vel_time_unit

| | | |
|---|---|---|
| Namespace | No namespace | |
| Type | velTimeUnitType | |
| Type hierarchy | • xs:string<br>• unitType<br>• velTimeUnitType | |
| Properties | use: | optional |
| Facets | enumeration | s |
| | enumeration | h |
| | enumeration | d |
| | enumeration | a |
| | enumeration | yr |
| | enumeration | cy |
| Used by | Complex Type | redshiftCoordinateType |
| Source | <xs:attribute name="vel_time_unit" type="velTimeUnitType" use="optional"/> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute fitsType / @hdu_num

| | | |
|---|---|---|
| Namespace | No namespace | |
| Type | xs:integer | |
| Properties | content: | simple |
| Used by | Complex Type | fitsType |
| Source | <xs:attribute name="hdu_num" type="xs:integer"/> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute fitsType / @hdu_name

| | | |
|---|---|---|
| Namespace | No namespace | |
| Type | xs:string | |
| Properties | content: | simple |

| | |
|---|---|
| Used by | Complex Type fitsType |
| Source | `<xs:attribute name="hdu_name" type="xs:string"/>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Attribute `orbitType / a / @unit`

| | |
|---|---|
| Namespace | No namespace |
| Type | posUnitType |
| Type hierarchy | • xs:string<br>• unitType<br>• posUnitType |
| Properties | use: optional<br>default: AU |
| Facets | enumeration deg<br>enumeration deg deg m<br>enumeration deg deg Mpc<br>enumeration rad<br>enumeration h<br>enumeration arcmin<br>enumeration arcsec<br>enumeration m<br>enumeration km<br>enumeration mm<br>enumeration AU<br>enumeration pc<br>enumeration kpc<br>enumeration Mpc<br>enumeration lyr<br>enumeration |
| Used by | Element orbitType/a |
| Source | `<xs:attribute name="unit" type="posUnitType" use="optional" default="AU"/>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Attribute `orbitType / q / @unit`

| | |
|---|---|
| Namespace | No namespace |
| Type | posUnitType |
| Type hierarchy | • xs:string<br>• unitType<br>• posUnitType |
| Properties | use: optional<br>default: AU |
| Facets | enumeration deg<br>enumeration deg deg m<br>enumeration deg deg Mpc<br>enumeration rad<br>enumeration h<br>enumeration arcmin<br>enumeration arcsec |

| | | |
|---|---|---|
| | enumeration | m |
| | enumeration | km |
| | enumeration | mm |
| | enumeration | AU |
| | enumeration | pc |
| | enumeration | kpc |
| | enumeration | Mpc |
| | enumeration | lyr |
| | enumeration | |
| Used by | Element | orbitType/q |
| Source | <xs:attribute name="unit" type="posUnitType" use="optional" default="AU"/> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute orbitType / i / @unit

| | | |
|---|---|---|
| Namespace | No namespace | |
| Type | posUnitType | |
| Type hierarchy | • xs:string<br>• unitType<br>• posUnitType | |
| Properties | use: | optional |
| | default: | deg |
| Facets | enumeration | deg |
| | enumeration | deg deg m |
| | enumeration | deg deg Mpc |
| | enumeration | rad |
| | enumeration | h |
| | enumeration | arcmin |
| | enumeration | arcsec |
| | enumeration | m |
| | enumeration | km |
| | enumeration | mm |
| | enumeration | AU |
| | enumeration | pc |
| | enumeration | kpc |
| | enumeration | Mpc |
| | enumeration | lyr |
| | enumeration | |
| Used by | Element | orbitType/i |
| Source | <xs:attribute name="unit" type="posUnitType" use="optional" default="deg"/> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute orbitType / Node / @unit

| | |
|---|---|
| Namespace | No namespace |
| Type | posUnitType |
| Type hierarchy | • xs:string<br>• unitType<br>• posUnitType |

| | | |
|---|---|---|
| Properties | use: | optional |
| | default: | deg |
| Facets | enumeration | deg |
| | enumeration | deg deg m |
| | enumeration | deg deg Mpc |
| | enumeration | rad |
| | enumeration | h |
| | enumeration | arcmin |
| | enumeration | arcsec |
| | enumeration | m |
| | enumeration | km |
| | enumeration | mm |
| | enumeration | AU |
| | enumeration | pc |
| | enumeration | kpc |
| | enumeration | Mpc |
| | enumeration | lyr |
| | enumeration | |
| Used by | Element | orbitType/Node |
| Source | <xs:attribute name="unit" type="posUnitType" use="optional" default="deg"/> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute orbitType / Aop / @unit

| | | |
|---|---|---|
| Namespace | No namespace | |
| Type | posUnitType | |
| Type hierarchy | • xs:string<br>• unitType<br>• posUnitType | |
| Properties | use: | optional |
| | default: | deg |
| Facets | enumeration | deg |
| | enumeration | deg deg m |
| | enumeration | deg deg Mpc |
| | enumeration | rad |
| | enumeration | h |
| | enumeration | arcmin |
| | enumeration | arcsec |
| | enumeration | m |
| | enumeration | km |
| | enumeration | mm |
| | enumeration | AU |
| | enumeration | pc |
| | enumeration | kpc |
| | enumeration | Mpc |
| | enumeration | lyr |
| | enumeration | |
| Used by | Element | orbitType/Aop |

| | |
|---|---|
| Source | `<xs:attribute name="unit" type="posUnitType" use="optional" default="deg"/>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Attribute `orbitType / M / @unit`

| | | |
|---|---|---|
| Namespace | No namespace | |
| Type | posUnitType | |
| Type hierarchy | • xs:string<br>  • unitType<br>  • posUnitType | |
| Properties | use: | optional |
| | default: | deg |
| Facets | enumeration | deg |
| | enumeration | deg deg m |
| | enumeration | deg deg Mpc |
| | enumeration | rad |
| | enumeration | h |
| | enumeration | arcmin |
| | enumeration | arcsec |
| | enumeration | m |
| | enumeration | km |
| | enumeration | mm |
| | enumeration | AU |
| | enumeration | pc |
| | enumeration | kpc |
| | enumeration | Mpc |
| | enumeration | lyr |
| | enumeration | |
| Used by | Element | orbitType/M |
| Source | `<xs:attribute name="unit" type="posUnitType" use="optional" default="deg"/>` | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute `orbitType / P / @unit`

| | | |
|---|---|---|
| Namespace | No namespace | |
| Type | timeUnitType | |
| Type hierarchy | • xs:string<br>  • unitType<br>  • timeUnitType | |
| Properties | use: | optional |
| | default: | d |
| Facets | enumeration | s |
| | enumeration | h |
| | enumeration | d |
| | enumeration | a |
| | enumeration | yr |
| | enumeration | cy |
| | enumeration | |
| Used by | Element | orbitType/P |

| | |
|---|---|
| Source | <xs:attribute name="unit" type="timeUnitType" use="optional" default="d"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Attribute sphericalRefFrameType / @id

| | |
|---|---|
| Namespace | No namespace |
| Type | xs:ID |
| Properties | use: optional |
| Used by | Complex Type sphericalRefFrameType |
| Source | <xs:attribute name="id" type="xs:ID" use="optional"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Attribute double2Type / @unit

| | |
|---|---|
| Namespace | No namespace |
| Type | posUnitType |
| Type hierarchy | • xs:string<br>  • unitType<br>  • posUnitType |
| Properties | use: optional |
| Facets | enumeration deg<br>enumeration deg deg m<br>enumeration deg deg Mpc<br>enumeration rad<br>enumeration h<br>enumeration arcmin<br>enumeration arcsec<br>enumeration m<br>enumeration km<br>enumeration mm<br>enumeration AU<br>enumeration pc<br>enumeration kpc<br>enumeration Mpc<br>enumeration lyr<br>enumeration |
| Used by | Complex Type double2Type |
| Source | <xs:attribute name="unit" type="posUnitType" use="optional"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Attribute double2Type / @vel_time_unit

| | |
|---|---|
| Namespace | No namespace |
| Type | velTimeUnitType |
| Type hierarchy | • xs:string<br>  • unitType<br>  • velTimeUnitType |
| Properties | use: optional |
| Facets | enumeration s |

| | | |
|---|---|---|
| | enumeration | h |
| | enumeration | d |
| | enumeration | a |
| | enumeration | yr |
| | enumeration | cy |
| Used by | Complex Type | double2Type |
| Source | <xs:attribute name="vel_time_unit" type="velTimeUnitType" use="optional"/> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute double2Type / @gen_unit

| | | |
|---|---|---|
| Namespace | No namespace | |
| Type | unitType | |
| Properties | use: | optional |
| Used by | Complex Type | double2Type |
| Source | <xs:attribute name="gen_unit" type="unitType" use="optional"/> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute posAngleType / @unit

| | | |
|---|---|---|
| Namespace | No namespace | |
| Type | angleUnitType | |
| Type hierarchy | • xs:string<br>• unitType<br>• angleUnitType | |
| Properties | default: | deg |
| Facets | enumeration | deg |
| | enumeration | rad |
| | enumeration | h |
| | enumeration | arcmin |
| | enumeration | arcsec |
| Used by | Complex Type | posAngleType |
| Source | <xs:attribute name="unit" type="angleUnitType" default="deg"/> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute posAngleType / @reference

| | | |
|---|---|---|
| Namespace | No namespace | |
| Type | posAngleReferenceType | |
| Properties | default: | X |
| Facets | enumeration | North |
| | enumeration | X |
| | enumeration | Y |
| Used by | Complex Type | posAngleType |
| Source | <xs:attribute name="reference" type="posAngleReferenceType" default="X"/> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute double4Type / @unit

| | |
|---|---|
| Namespace | No namespace |

| | |
|---|---|
| Type | posUnitType |
| Type hierarchy | • xs:string<br>  • unitType<br>  • posUnitType |
| Properties | use: optional |
| Facets | enumeration deg<br>enumeration deg deg m<br>enumeration deg deg Mpc<br>enumeration rad<br>enumeration h<br>enumeration arcmin<br>enumeration arcsec<br>enumeration m<br>enumeration km<br>enumeration mm<br>enumeration AU<br>enumeration pc<br>enumeration kpc<br>enumeration Mpc<br>enumeration lyr<br>enumeration |
| Used by | Complex Type double4Type |
| Source | <xs:attribute name="unit" type="posUnitType" use="optional"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Attribute double4Type / @vel_time_unit

| | |
|---|---|
| Namespace | No namespace |
| Type | velTimeUnitType |
| Type hierarchy | • xs:string<br>  • unitType<br>  • velTimeUnitType |
| Properties | use: optional |
| Facets | enumeration s<br>enumeration h<br>enumeration d<br>enumeration a<br>enumeration yr<br>enumeration cy |
| Used by | Complex Type double4Type |
| Source | <xs:attribute name="vel_time_unit" type="velTimeUnitType" use="optional"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Attribute double4Type / @gen_unit

| | |
|---|---|
| Namespace | No namespace |
| Type | unitType |
| Properties | use: optional |

| | |
|---|---|
| Used by | Complex Type double4Type |
| Source | `<xs:attribute name="gen_unit" type="unitType" use="optional"/>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Attribute `double3Type / @unit`

| | |
|---|---|
| Namespace | No namespace |
| Type | posUnitType |
| Type hierarchy | • xs:string<br>  • unitType<br>  • posUnitType |
| Properties | use: optional |
| Facets | enumeration deg<br>enumeration deg deg m<br>enumeration deg deg Mpc<br>enumeration rad<br>enumeration h<br>enumeration arcmin<br>enumeration arcsec<br>enumeration m<br>enumeration km<br>enumeration mm<br>enumeration AU<br>enumeration pc<br>enumeration kpc<br>enumeration Mpc<br>enumeration lyr<br>enumeration |
| Used by | Complex Type double3Type |
| Source | `<xs:attribute name="unit" type="posUnitType" use="optional"/>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Attribute `double3Type / @vel_time_unit`

| | |
|---|---|
| Namespace | No namespace |
| Type | velTimeUnitType |
| Type hierarchy | • xs:string<br>  • unitType<br>  • velTimeUnitType |
| Properties | use: optional |
| Facets | enumeration s<br>enumeration h<br>enumeration d<br>enumeration a<br>enumeration yr<br>enumeration cy |
| Used by | Complex Type double3Type |
| Source | `<xs:attribute name="vel_time_unit" type="velTimeUnitType" use="optional"/>` |

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Attribute `double3Type / @gen_unit`

| | |
|---|---|
| Namespace | No namespace |
| Type | unitType |
| Properties | use: `optional` |
| Used by | Complex Type double3Type |
| Source | `<xs:attribute name="gen_unit" type="unitType" use="optional"/>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Attribute `double9Type / @unit`

| | |
|---|---|
| Namespace | No namespace |
| Type | posUnitType |
| Type hierarchy | • xs:string<br>  • unitType<br>  • posUnitType |
| Properties | use: `optional` |
| Facets | enumeration `deg`<br>enumeration `deg deg m`<br>enumeration `deg deg Mpc`<br>enumeration `rad`<br>enumeration `h`<br>enumeration `arcmin`<br>enumeration `arcsec`<br>enumeration `m`<br>enumeration `km`<br>enumeration `mm`<br>enumeration `AU`<br>enumeration `pc`<br>enumeration `kpc`<br>enumeration `Mpc`<br>enumeration `lyr`<br>enumeration |
| Used by | Complex Type double9Type |
| Source | `<xs:attribute name="unit" type="posUnitType" use="optional"/>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Attribute `double9Type / @vel_time_unit`

| | |
|---|---|
| Namespace | No namespace |
| Type | velTimeUnitType |
| Type hierarchy | • xs:string<br>  • unitType<br>  • velTimeUnitType |
| Properties | use: `optional` |
| Facets | enumeration `s`<br>enumeration `h` |

| | | |
|---|---|---|
| | enumeration | d |
| | enumeration | a |
| | enumeration | yr |
| | enumeration | cy |
| Used by | Complex Type | double9Type |
| Source | <xs:attribute name="vel_time_unit" type="velTimeUnitType" use="optional"/> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute double9Type / @gen_unit

| | | |
|---|---|---|
| Namespace | No namespace | |
| Type | unitType | |
| Properties | use: | optional |
| Used by | Complex Type | double9Type |
| Source | <xs:attribute name="gen_unit" type="unitType" use="optional"/> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute cart1DRefFrameType / @id

| | | |
|---|---|---|
| Namespace | No namespace | |
| Type | xs:ID | |
| Properties | use: | optional |
| Used by | Complex Type | cart1DRefFrameType |
| Source | <xs:attribute name="id" type="xs:ID" use="optional"/> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute cart1DRefFrameType / @projection

| | | | |
|---|---|---|---|
| Namespace | No namespace | | |
| Type | projectionType | | |
| Properties | use: | optional | |
| | default: | | |
| Facets | enumeration | | Planar (i.e., linear cartesian-to-cartesian) projection |
| | enumeration | LOG | Linear-to-logarithmic cartesian-to-cartesian projection |
| | enumeration | TAN | Tangent plane projection |
| | enumeration | SIN | Sine projection |
| | enumeration | STG | Stereographic projection |
| | enumeration | ARC | Zenithal equidistant projection |
| | enumeration | ZEA | Zenithal equal-area projection |
| | enumeration | AIR | Airy projection |
| | enumeration | CEA | Cylindrical equal-area projection |
| | enumeration | CAR | Plate Carree projection |
| | enumeration | MER | Mercator projection |
| | enumeration | SFL | Sanson-Flamsteed projection |
| | enumeration | PAR | Parabolic projection |
| | enumeration | MOL | Mollweide projection |
| | enumeration | AIT | Hammer-Aitoff projection |
| | enumeration | COE | Conic equal-area projection |
| | enumeration | COD | Conic equidistant projection |

| | | | |
|---|---|---|---|
| | enumeration | COO | Conic orthomorphic projection |
| | enumeration | BON | Bonne equal-area projection |
| | enumeration | PCO | Polyconic projection |
| | enumeration | TSC | Tangential spherical cube projection |
| | enumeration | CSC | COBE quadrilateralized spherical cube projection |
| | enumeration | QSC | Quadrilateralized spherical cube projection |
| Used by | Complex Type | cart1DRefFrameType | |
| Source | <xs:attribute name="projection" type="projectionType" use="optional" default=""/> | | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | | |

## Attribute cart2DRefFrameType / @id

| | | |
|---|---|---|
| Namespace | No namespace | |
| Type | xs:ID | |
| Properties | use: | optional |
| Used by | Complex Type | cart2DRefFrameType |
| Source | <xs:attribute name="id" type="xs:ID" use="optional"/> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute cart2DRefFrameType / @projection

| | | | |
|---|---|---|---|
| Namespace | No namespace | | |
| Type | projectionType | | |
| Properties | use: | optional | |
| | default: | | |
| Facets | enumeration | | Planar (i.e., linear cartesian-to-cartesian) projection |
| | enumeration | LOG | Linear-to-logarithmic cartesian-to-cartesian projection |
| | enumeration | TAN | Tangent plane projection |
| | enumeration | SIN | Sine projection |
| | enumeration | STG | Stereographic projection |
| | enumeration | ARC | Zenithal equidistant projection |
| | enumeration | ZEA | Zenithal equal-area projection |
| | enumeration | AIR | Airy projection |
| | enumeration | CEA | Cylindrical equal-area projection |
| | enumeration | CAR | Plate Carree projection |
| | enumeration | MER | Mercator projection |
| | enumeration | SFL | Sanson-Flamsteed projection |
| | enumeration | PAR | Parabolic projection |
| | enumeration | MOL | Mollweide projection |
| | enumeration | AIT | Hammer-Aitoff projection |
| | enumeration | COE | Conic equal-area projection |
| | enumeration | COD | Conic equidistant projection |
| | enumeration | COO | Conic orthomorphic projection |
| | enumeration | BON | Bonne equal-area projection |
| | enumeration | PCO | Polyconic projection |
| | enumeration | TSC | Tangential spherical cube projection |
| | enumeration | CSC | COBE quadrilateralized spherical cube projection |
| | enumeration | QSC | Quadrilateralized spherical cube projection |

| | | |
|---|---|---|
| Used by | Complex Type | cart2DRefFrameType |
| Source | <xs:attribute name="projection" type="projectionType" use="optional" default=""/> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute cart3DRefFrameType / @id

| | | |
|---|---|---|
| Namespace | No namespace | |
| Type | xs:ID | |
| Properties | use: | optional |
| Used by | Complex Type | cart3DRefFrameType |
| Source | <xs:attribute name="id" type="xs:ID" use="optional"/> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute cart3DRefFrameType / @projection

| | | |
|---|---|---|
| Namespace | No namespace | |
| Type | projectionType | |
| Properties | use: | optional |
| | default: | |
| Facets | enumeration | Planar (i.e., linear cartesian-to-cartesian) projection |
| | enumeration LOG | Linear-to-logarithmic cartesian-to-cartesian projection |
| | enumeration TAN | Tangent plane projection |
| | enumeration SIN | Sine projection |
| | enumeration STG | Stereographic projection |
| | enumeration ARC | Zenithal equidistant projection |
| | enumeration ZEA | Zenithal equal-area projection |
| | enumeration AIR | Airy projection |
| | enumeration CEA | Cylindrical equal-area projection |
| | enumeration CAR | Plate Carree projection |
| | enumeration MER | Mercator projection |
| | enumeration SFL | Sanson-Flamsteed projection |
| | enumeration PAR | Parabolic projection |
| | enumeration MOL | Mollweide projection |
| | enumeration AIT | Hammer-Aitoff projection |
| | enumeration COE | Conic equal-area projection |
| | enumeration COD | Conic equidistant projection |
| | enumeration COO | Conic orthomorphic projection |
| | enumeration BON | Bonne equal-area projection |
| | enumeration PCO | Polyconic projection |
| | enumeration TSC | Tangential spherical cube projection |
| | enumeration CSC | COBE quadrilateralized spherical cube projection |
| | enumeration QSC | Quadrilateralized spherical cube projection |
| Used by | Complex Type | cart3DRefFrameType |
| Source | <xs:attribute name="projection" type="projectionType" use="optional" default=""/> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute healpixType / @healpix_H

| | |
|---|---|
| Namespace | No namespace |

| | |
|---|---|
| Type | xs:integer |
| Properties | default: 4 |
| Used by | Complex Type healpixType |
| Source | `<xs:attribute name="healpix_H" type="xs:integer" default="4"/>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Attribute `healpixType / @healpix_K`

| | |
|---|---|
| Namespace | No namespace |
| Type | xs:integer |
| Properties | default: 3 |
| Used by | Complex Type healpixType |
| Source | `<xs:attribute name="healpix_K" type="xs:integer" default="3"/>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Attribute `pixelFrameType / @axis1_order`

| | |
|---|---|
| Namespace | No namespace |
| Type | xs:integer |
| Properties | use: required |
| Used by | Complex Type pixelFrameType |
| Source | `<xs:attribute name="axis1_order" type="xs:integer" use="required"/>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Attribute `pixelFrameType / @axis2_order`

| | |
|---|---|
| Namespace | No namespace |
| Type | xs:integer |
| Properties | content: simple |
| Used by | Complex Type pixelFrameType |
| Source | `<xs:attribute name="axis2_order" type="xs:integer"/>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Attribute `pixelFrameType / @axis3_order`

| | |
|---|---|
| Namespace | No namespace |
| Type | xs:integer |
| Properties | content: simple |
| Used by | Complex Type pixelFrameType |
| Source | `<xs:attribute name="axis3_order" type="xs:integer"/>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Attribute `pixelFrameType / @ref_frame_id`

| | |
|---|---|
| Namespace | No namespace |
| Type | xs:IDREF |
| Properties | content: simple |
| Used by | Complex Type pixelFrameType |
| Source | `<xs:attribute name="ref_frame_id" type="xs:IDREF"/>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Attribute `redshiftFrameType / @value_type`

| | |
|---|---|
| Namespace | No namespace |
| Type | restriction of xs:string |
| Properties | use: `optional`<br>default: `VELOCITY` |
| Facets | enumeration `VELOCITY`<br>enumeration `REDSHIFT` |
| Used by | Complex Type redshiftFrameType |
| Source | `<xs:attribute name="value_type" use="optional" default="VELOCITY">`<br>`  <xs:simpleType>`<br>`  <xs:restriction base="xs:string">`<br>`  <xs:enumeration value="VELOCITY"/>`<br>`  <xs:enumeration value="REDSHIFT"/>`<br>`  </xs:restriction>`<br>`  </xs:simpleType>`<br>`</xs:attribute>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Attribute `curve2Type / @curve_shape`

| | |
|---|---|
| Namespace | No namespace |
| Type | xs:string |
| Properties | use: `optional`<br>default: `line` |
| Used by | Complex Type curve2Type |
| Source | `<xs:attribute name="curve_shape" type="xs:string" use="optional" default="line"/>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Attribute `curve3Type / @curve_shape`

| | |
|---|---|
| Namespace | No namespace |
| Type | xs:string |
| Properties | use: `optional`<br>default: `line` |
| Used by | Complex Type curve3Type |
| Source | `<xs:attribute name="curve_shape" type="xs:string" use="optional" default="line"/>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Attribute `stringCoordinateType / @unit`

| | |
|---|---|
| Namespace | No namespace |
| Type | unitType |
| Properties | use: `optional` |
| Used by | Complex Type stringCoordinateType |
| Source | `<xs:attribute name="unit" type="unitType" use="optional"/>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Attribute `scalarCoordinateType / @unit`

| | |
|---|---|
| Namespace | No namespace |
| Type | unitType |
| Properties | use: `optional` |

| | | |
|---|---|---|
| Used by | Complex Type | scalarCoordinateType |
| Source | <xs:attribute name="unit" type="unitType" use="optional"/> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute genVector2CoordinateType / @unit

| | | |
|---|---|---|
| Namespace | No namespace | |
| Type | unitType | |
| Properties | use: | optional |
| Used by | Complex Type | genVector2CoordinateType |
| Source | <xs:attribute name="unit" type="unitType" use="optional"/> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute genVector3CoordinateType / @unit

| | | |
|---|---|---|
| Namespace | No namespace | |
| Type | unitType | |
| Properties | use: | optional |
| Used by | Complex Type | genVector3CoordinateType |
| Source | <xs:attribute name="unit" type="unitType" use="optional"/> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute posVector1CoordinateType / @coord_system_id

| | | |
|---|---|---|
| Namespace | No namespace | |
| Type | xs:IDREF | |
| Properties | use: | optional |
| Used by | Complex Type | posVector1CoordinateType |
| Source | <xs:attribute name="coord_system_id" type="xs:IDREF" use="optional"/> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute posVector1CoordinateType / @unit

| | | |
|---|---|---|
| Namespace | No namespace | |
| Type | posUnitType | |
| Type hierarchy | • xs:string<br>• unitType<br>• posUnitType | |
| Properties | use: | optional |
| Facets | enumeration | deg |
| | enumeration | deg deg m |
| | enumeration | deg deg Mpc |
| | enumeration | rad |
| | enumeration | h |
| | enumeration | arcmin |
| | enumeration | arcsec |
| | enumeration | m |
| | enumeration | km |
| | enumeration | mm |
| | enumeration | AU |

| | | |
|---|---|---|
| | enumeration | pc |
| | enumeration | kpc |
| | enumeration | Mpc |
| | enumeration | lyr |
| | enumeration | |
| Used by | Complex Type | posVector1CoordinateType |
| Source | <xs:attribute name="unit" type="posUnitType" use="optional"/> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute posVector2CoordinateType / @coord_system_id

| | | |
|---|---|---|
| Namespace | No namespace | |
| Type | xs:IDREF | |
| Properties | use: | optional |
| Used by | Complex Type | posVector2CoordinateType |
| Source | <xs:attribute name="coord_system_id" type="xs:IDREF" use="optional"/> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute posVector2CoordinateType / @unit

| | | |
|---|---|---|
| Namespace | No namespace | |
| Type | posUnitType | |
| Type hierarchy | • xs:string<br>• unitType<br>• posUnitType | |
| Properties | use: | optional |
| Facets | enumeration | deg |
| | enumeration | deg deg m |
| | enumeration | deg deg Mpc |
| | enumeration | rad |
| | enumeration | h |
| | enumeration | arcmin |
| | enumeration | arcsec |
| | enumeration | m |
| | enumeration | km |
| | enumeration | mm |
| | enumeration | AU |
| | enumeration | pc |
| | enumeration | kpc |
| | enumeration | Mpc |
| | enumeration | lyr |
| | enumeration | |
| Used by | Complex Type | posVector2CoordinateType |
| Source | <xs:attribute name="unit" type="posUnitType" use="optional"/> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute posVector3CoordinateType / @coord_system_id

| | |
|---|---|
| Namespace | No namespace |
| Type | xs:IDREF |

| | | |
|---|---|---|
| Properties | use: | optional |
| Used by | Complex Type | posVector3CoordinateType |
| Source | <xs:attribute name="coord_system_id" type="xs:IDREF" use="optional"/> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute posVector3CoordinateType / @unit

| | | |
|---|---|---|
| Namespace | No namespace | |
| Type | posUnitType | |
| Type hierarchy | • xs:string<br>• unitType<br>• posUnitType | |
| Properties | use: | optional |
| Facets | enumeration | deg |
| | enumeration | deg deg m |
| | enumeration | deg deg Mpc |
| | enumeration | rad |
| | enumeration | h |
| | enumeration | arcmin |
| | enumeration | arcsec |
| | enumeration | m |
| | enumeration | km |
| | enumeration | mm |
| | enumeration | AU |
| | enumeration | pc |
| | enumeration | kpc |
| | enumeration | Mpc |
| | enumeration | lyr |
| | enumeration | |
| Used by | Complex Type | posVector3CoordinateType |
| Source | <xs:attribute name="unit" type="posUnitType" use="optional"/> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute velVector1CoordinateType / @vel_time_unit

| | | |
|---|---|---|
| Namespace | No namespace | |
| Type | velTimeUnitType | |
| Type hierarchy | • xs:string<br>• unitType<br>• velTimeUnitType | |
| Properties | use: | optional |
| Facets | enumeration | s |
| | enumeration | h |
| | enumeration | d |
| | enumeration | a |
| | enumeration | yr |
| | enumeration | cy |
| Used by | Complex Type | velVector1CoordinateType |

| | |
|---|---|
| Source | <xs:attribute name="vel_time_unit" type="velTimeUnitType" use="optional"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Attribute velVector2CoordinateType / @vel_time_unit

| | |
|---|---|
| Namespace | No namespace |
| Type | velTimeUnitType |
| Type hierarchy | • xs:string<br>• unitType<br>• velTimeUnitType |
| Properties | use: optional |
| Facets | enumeration s<br>enumeration h<br>enumeration d<br>enumeration a<br>enumeration yr<br>enumeration cy |
| Used by | Complex Type velVector2CoordinateType |
| Source | <xs:attribute name="vel_time_unit" type="velTimeUnitType" use="optional"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Attribute velVector3CoordinateType / @vel_time_unit

| | |
|---|---|
| Namespace | No namespace |
| Type | velTimeUnitType |
| Type hierarchy | • xs:string<br>• unitType<br>• velTimeUnitType |
| Properties | use: optional |
| Facets | enumeration s<br>enumeration h<br>enumeration d<br>enumeration a<br>enumeration yr<br>enumeration cy |
| Used by | Complex Type velVector3CoordinateType |
| Source | <xs:attribute name="vel_time_unit" type="velTimeUnitType" use="optional"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Attribute regionAreaType / @linearAreaUnit

| | |
|---|---|
| Namespace | No namespace |
| Type | posUnitType |
| Type hierarchy | • xs:string<br>• unitType<br>• posUnitType |
| Properties | use: required |
| Facets | enumeration deg<br>enumeration deg deg m |

| | | |
|---|---|---|
| | enumeration | deg deg Mpc |
| | enumeration | rad |
| | enumeration | h |
| | enumeration | arcmin |
| | enumeration | arcsec |
| | enumeration | m |
| | enumeration | km |
| | enumeration | mm |
| | enumeration | AU |
| | enumeration | pc |
| | enumeration | kpc |
| | enumeration | Mpc |
| | enumeration | lyr |
| | enumeration | |
| Used by | Complex Type | regionAreaType |
| Source | <xs:attribute name="linearAreaUnit" type="posUnitType" use="required"/> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute regionAreaType / @validArea

| | | |
|---|---|---|
| Namespace | No namespace | |
| Type | xs:boolean | |
| Properties | use: | required |
| Used by | Complex Type | regionAreaType |
| Source | <xs:attribute name="validArea" type="xs:boolean" use="required"/> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute coordIntervalType / @lo_include

| | |
|---|---|
| Namespace | No namespace |
| Annotations | Limit to be included? |
| Type | xs:boolean |
| Properties | default: true |
| Used by | Complex Type coordIntervalType |
| Source | <xs:attribute name="lo_include" type="xs:boolean" default="true"><br><xs:annotation><br><xs:documentation>Limit to be included?</xs:documentation><br></xs:annotation><br></xs:attribute> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Attribute coordIntervalType / @hi_include

| | |
|---|---|
| Namespace | No namespace |
| Annotations | Limit to be included? |
| Type | xs:boolean |
| Properties | default: true |
| Used by | Complex Type coordIntervalType |
| Source | <xs:attribute name="hi_include" type="xs:boolean" default="true"><br><xs:annotation><br><xs:documentation>Limit to be included?</xs:documentation><br></xs:annotation><br></xs:attribute> |

| | |
|---|---|
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Attribute `coordIntervalType / @fill_factor`

| | |
|---|---|
| Namespace | No namespace |
| Annotations | `Fraction of interval that is occupied by data` |
| Type | xs:float |
| Properties | use: `optional`<br>default: `1.0` |
| Used by | Complex Type coordIntervalType |
| Source | `<xs:attribute name="fill_factor" type="xs:float" use="optional" default="1.0">`<br>`  <xs:annotation>`<br>`  <xs:documentation>Fraction of interval that is occupied by data</xs:documentation>`<br>`  </xs:annotation>`<br>`</xs:attribute>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Attribute `coordIntervalType / @frame_id`

| | |
|---|---|
| Namespace | No namespace |
| Type | xs:IDREF |
| Properties | use: `optional` |
| Used by | Complex Type coordIntervalType |
| Source | `<xs:attribute name="frame_id" type="xs:IDREF" use="optional"/>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Attribute `spatialIntervalType / @epoch`

| | |
|---|---|
| Namespace | No namespace |
| Type | xs:decimal |
| Properties | use: `optional` |
| Used by | Complex Type spatialIntervalType |
| Source | `<xs:attribute name="epoch" type="xs:decimal" use="optional"/>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Attribute `spatialIntervalType / @unit`

| | |
|---|---|
| Namespace | No namespace |
| Type | posUnitType |
| Type hierarchy | • xs:string<br>  • unitType<br>  • posUnitType |
| Properties | use: `optional` |
| Facets | enumeration `deg`<br>enumeration `deg deg m`<br>enumeration `deg deg Mpc`<br>enumeration `rad`<br>enumeration `h`<br>enumeration `arcmin`<br>enumeration `arcsec`<br>enumeration `m`<br>enumeration `km` |

| | | |
|---|---|---|
| | enumeration | mm |
| | enumeration | AU |
| | enumeration | pc |
| | enumeration | kpc |
| | enumeration | Mpc |
| | enumeration | lyr |
| | enumeration | |
| Used by | Complex Type | spatialIntervalType |
| Source | <xs:attribute name="unit" type="posUnitType" use="optional"/> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute regionType / @note

| | | |
|---|---|---|
| Namespace | No namespace | |
| Type | xs:string | |
| Properties | use: | optional |
| Used by | Complex Type | regionType |
| Source | <xs:attribute name="note" type="xs:string" use="optional"/> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute regionType / @coord_system_id

| | | |
|---|---|---|
| Namespace | No namespace | |
| Type | xs:IDREF | |
| Properties | use: | optional |
| Used by | Complex Type | regionType |
| Source | <xs:attribute name="coord_system_id" type="xs:IDREF" use="optional"/> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute uCoordScalarIntervalType / @unit

| | | |
|---|---|---|
| Namespace | No namespace | |
| Type | unitType | |
| Properties | use: | optional |
| Used by | Complex Type | uCoordScalarIntervalType |
| Source | <xs:attribute name="unit" type="unitType" use="optional"/> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute uCoord2VecIntervalType / @unit

| | | |
|---|---|---|
| Namespace | No namespace | |
| Type | unitType | |
| Properties | use: | optional |
| Used by | Complex Type | uCoord2VecIntervalType |
| Source | <xs:attribute name="unit" type="unitType" use="optional"/> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute uCoord3VecIntervalType / @unit

| | | |
|---|---|---|
| Namespace | No namespace | |
| Type | unitType | |
| Properties | use: | optional |

| | |
|---|---|
| Used by | Complex Type uCoord3VecIntervalType |
| Source | `<xs:attribute name="unit" type="unitType" use="optional"/>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Attribute `velocityIntervalType / @vel_time_unit`

| | |
|---|---|
| Namespace | No namespace |
| Type | velTimeUnitType |
| Type hierarchy | • xs:string<br>  • unitType<br>  • velTimeUnitType |
| Properties | use: required |
| Facets | enumeration s<br>enumeration h<br>enumeration d<br>enumeration a<br>enumeration yr<br>enumeration cy |
| Used by | Complex Type velocityIntervalType |
| Source | `<xs:attribute name="vel_time_unit" type="velTimeUnitType" use="required"/>` |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Attribute `sphereType / @radius_unit`

| | |
|---|---|
| Namespace | No namespace |
| Type | posUnitType |
| Type hierarchy | • xs:string<br>  • unitType<br>  • posUnitType |
| Properties | use: optional<br>default: deg |
| Facets | enumeration deg<br>enumeration deg deg m<br>enumeration deg deg Mpc<br>enumeration rad<br>enumeration h<br>enumeration arcmin<br>enumeration arcsec<br>enumeration m<br>enumeration km<br>enumeration mm<br>enumeration AU<br>enumeration pc<br>enumeration kpc<br>enumeration Mpc<br>enumeration lyr<br>enumeration |
| Used by | Complex Type sphereType |

| | |
|---|---|
| Source | <xs:attribute name="radius_unit" type="posUnitType" use="optional" default="deg"/> |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd |

## Attribute velocitySphereType / @radius_unit

| | | |
|---|---|---|
| Namespace | No namespace | |
| Type | posUnitType | |
| Type hierarchy | • xs:string<br>• unitType<br>• posUnitType | |
| Properties | use: | optional |
| | default: | deg |
| Facets | enumeration | deg |
| | enumeration | deg deg m |
| | enumeration | deg deg Mpc |
| | enumeration | rad |
| | enumeration | h |
| | enumeration | arcmin |
| | enumeration | arcsec |
| | enumeration | m |
| | enumeration | km |
| | enumeration | mm |
| | enumeration | AU |
| | enumeration | pc |
| | enumeration | kpc |
| | enumeration | Mpc |
| | enumeration | lyr |
| | enumeration | |
| Used by | Complex Type | velocitySphereType |
| Source | <xs:attribute name="radius_unit" type="posUnitType" use="optional" default="deg"/> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute spectralIntervalType / @unit

| | | |
|---|---|---|
| Namespace | No namespace | |
| Type | spectralUnitType | |
| Type hierarchy | • xs:string<br>• unitType<br>• spectralUnitType | |
| Properties | use: | required |
| Facets | enumeration | Hz |
| | enumeration | kHz |
| | enumeration | MHz |
| | enumeration | GHz |
| | enumeration | m |
| | enumeration | mm |
| | enumeration | um |
| | enumeration | nm |
| | enumeration | Angstrom |

| | | |
|---|---|---|
| | enumeration | eV |
| | enumeration | keV |
| | enumeration | MeV |
| | enumeration | GeV |
| | enumeration | TeV |
| Used by | Complex Type | spectralIntervalType |
| Source | <xs:attribute name="unit" type="spectralUnitType" use="required"/> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute redshiftIntervalType / @unit

| | | |
|---|---|---|
| Namespace | No namespace | |
| Type | posUnitType | |
| Type hierarchy | • xs:string<br>• unitType<br>• posUnitType | |
| Properties | use: | optional |
| Facets | enumeration | deg |
| | enumeration | deg deg m |
| | enumeration | deg deg Mpc |
| | enumeration | rad |
| | enumeration | h |
| | enumeration | arcmin |
| | enumeration | arcsec |
| | enumeration | m |
| | enumeration | km |
| | enumeration | mm |
| | enumeration | AU |
| | enumeration | pc |
| | enumeration | kpc |
| | enumeration | Mpc |
| | enumeration | lyr |
| | enumeration | |
| Used by | Complex Type | redshiftIntervalType |
| Source | <xs:attribute name="unit" type="posUnitType" use="optional"/> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute redshiftIntervalType / @vel_time_unit

| | | |
|---|---|---|
| Namespace | No namespace | |
| Type | velTimeUnitType | |
| Type hierarchy | • xs:string<br>• unitType<br>• velTimeUnitType | |
| Properties | use: | optional |
| Facets | enumeration | s |
| | enumeration | h |
| | enumeration | d |
| | enumeration | a |

| | | |
|---|---|---|
| | enumeration | yr |
| | enumeration | cy |
| Used by | Complex Type | redshiftIntervalType |
| Source | <xs:attribute name="vel_time_unit" type="velTimeUnitType" use="optional"/> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute coordAreaType / @coord_system_id

| | | |
|---|---|---|
| Namespace | No namespace | |
| Type | xs:IDREF | |
| Properties | use: | required |
| Used by | Complex Type | coordAreaType |
| Source | <xs:attribute name="coord_system_id" type="xs:IDREF" use="required"/> | |
| Schema location | http://www.ivoa.net/xml/STC/stc-v1.30.xsd | |

## Attribute vr:Validation / @validatedBy

| | |
|---|---|
| Namespace | No namespace |
| Annotations | The IVOA ID of the registry or organisation that assigned the validation level. |
| Type | vr:IdentifierURI |
| Properties | use: required |
| Facets | pattern ivo://[\w\d][\w\d\-_\.!~*'\(\)\+=]{2,}(/[\w\d\-_\.!~*'\(\)\+=]+(/[\w\d\-_\.!~*'\(\)\+=]+)*)? |
| Used by | Complex Type vr:Validation |
| Source | <xs:attribute name="validatedBy" type="vr:IdentifierURI" use="required"><br><xs:annotation><br><xs:documentation>The IVOA ID of the registry or organisation that assigned the validation level.</xs:documentation><br></xs:annotation><br></xs:attribute> |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Attribute vr:Date / @role

| | |
|---|---|
| Namespace | No namespace |
| Annotations | A string indicating what the date refers to.<br><br>While this vocabulary is uncontrolled, recognized strings include "creation", indicating the date that the resource itself was created, and "update", indicating when the resource was updated last. The default value, "representative", means that the date is a rough representation of the time coverage of the resource.<br><br>Note that this date refers to the resource; dates describing the metadata description of the resource are handled by the "created" and "updated" attributes of the Resource element. |
| Type | xs:string |
| Properties | default: representative |
| Used by | Complex Type vr:Date |
| Source | <xs:attribute name="role" type="xs:string" default="representative"><br><xs:annotation><br><xs:documentation>A string indicating what the date refers to.</xs:documentation><br><xs:documentation>While this vocabulary is uncontrolled, recognized strings include "creation", indicating the date that the resource itself was created, and "update", indicating when the resource was updated last. The default value, "representative", |

| | |
|---|---|
| | means that the date is a rough representation of the time coverage of the resource.</xs:documentation><br><xs:documentation>Note that this date refers to the resource; dates describing the metadata description of the resource are handled by the "created" and "updated" attributes of the Resource element.</xs:documentation><br></xs:annotation><br></xs:attribute> |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Attribute vr:Resource / @created

| | |
|---|---|
| Namespace | No namespace |
| Annotations | The UTC date and time this resource metadata description was created.<br><br>This timestamp must not be in the future. This time is not required to be accurate; it should be at least accurate to the day. Any insignificant time fields should be set to zero. |
| Type | xs:dateTime |
| Properties | use: required |
| Used by | Complex Type vr:Resource |
| Source | <xs:attribute name="created" type="xs:dateTime" use="required"><br><xs:annotation><br><xs:documentation>The UTC date and time this resource metadata description was created.</xs:documentation><br><xs:documentation>This timestamp must not be in the future. This time is not required to be accurate; it should be at least accurate to the day. Any insignificant time fields should be set to zero.</xs:documentation><br></xs:annotation><br></xs:attribute> |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Attribute vr:Resource / @updated

| | |
|---|---|
| Namespace | No namespace |
| Annotations | The UTC date this resource metadata description was last updated.<br><br>This timestamp must not be in the future. This time is not required to be accurate; it should be at least accurate to the day. Any insignificant time fields should be set to zero. |
| Type | xs:dateTime |
| Properties | use: required |
| Used by | Complex Type vr:Resource |
| Source | <xs:attribute name="updated" type="xs:dateTime" use="required"><br><xs:annotation><br><xs:documentation>The UTC date this resource metadata description was last updated.</xs:documentation><br><xs:documentation>This timestamp must not be in the future. This time is not required to be accurate; it should be at least accurate to the day. Any insignificant time fields should be set to zero.</xs:documentation><br></xs:annotation><br></xs:attribute> |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Attribute vr:Resource / @status

| | | |
|---|---|---|
| Namespace | No namespace | |
| Annotations | a tag indicating whether this resource is believed to be still actively maintained. | |
| Type | restriction of xs:string | |
| Properties | use: required | |
| Facets | enumeration active | resource is believed to be currently maintained, and its description is up to date (default). |

| | | | |
|---|---|---|---|
| | enumeration | inactive | resource is apparently not being maintained at the present. |
| | enumeration | deleted | resource publisher has explicitly deleted the resource. |
| Used by | Complex Type | vr:Resource | |
| Source | <xs:attribute name="status" use="required"><br><xs:annotation><br><xs:documentation>a tag indicating whether this resource is believed to be still actively maintained.</xs:documentation><br></xs:annotation><br><xs:simpleType><br><xs:restriction base="xs:string"><br><xs:enumeration value="active"><br><xs:annotation><br><xs:documentation>resource is believed to be currently maintained, and its description is up to date (default).</xs:documentation><br></xs:annotation><br></xs:enumeration><br><xs:enumeration value="inactive"><br><xs:annotation><br><xs:documentation>resource is apparently not being maintained at the present.</xs:documentation><br></xs:annotation><br></xs:enumeration><br><xs:enumeration value="deleted"><br><xs:annotation><br><xs:documentation>resource publisher has explicitly deleted the resource.</xs:documentation><br></xs:annotation><br></xs:enumeration><br></xs:restriction><br></xs:simpleType><br></xs:attribute> | |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd | | |

## Attribute vr:SecurityMethod / @standardID

| | | |
|---|---|---|
| Namespace | No namespace | |
| Annotations | A URI identifier for a standard security mechanism.<br><br>This provides a unique way to refer to a security specification standard. The use of an IVOA identifier here implies that a VOResource description of the standard is registered and accessible. | |
| Type | xs:anyURI | |
| Properties | content: | simple |
| Used by | Complex Type | vr:SecurityMethod |
| Source | <xs:attribute name="standardID" type="xs:anyURI"><br><xs:annotation><br><xs:documentation>A URI identifier for a standard security mechanism.</xs:documentation><br><xs:documentation>This provides a unique way to refer to a security specification standard. The use of an IVOA identifier here implies that a VOResource description of the standard is registered and accessible.</xs:documentation><br></xs:annotation><br></xs:attribute> | |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd | |

## Attribute vr:Interface / @version

| | | |
|---|---|---|
| Namespace | No namespace | |
| Annotations | The version of a standard interface specification that this interface complies with. When the interface is provided in the context of a Capability element, then the standard being refered to is the one identified by the Capability's standardID element. If the standardID is not provided, the meaning of this attribute is undefined. | |
| Type | xs:string | |
| Properties | default: | 1.0 |

| | |
|---|---|
| Used by | Complex Type vr:Interface |
| Source | <xs:attribute name="version" type="xs:string" default="1.0"><br><xs:annotation><br><xs:documentation>The version of a standard interface specification that this interface complies with. When the interface is provided in the context of a Capability element, then the standard being refered to is the one identified by the Capability's standardID element. If the standardID is not provided, the meaning of this attribute is undefined.</xs:documentation><br></xs:annotation><br></xs:attribute> |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Attribute vr:Interface / @role

| | |
|---|---|
| Namespace | No namespace |
| Annotations | A tag name the identifies the role the interface plays in the particular capability. If the value is equal to "std" or begins with "std:", then the interface refers to a standard interface defined by the standard referred to by the capability's standardID attribute.<br><br>For an interface complying with some registered standard (i.e. has a legal standardID), the role can be match against interface roles enumerated in standard resource record. The interface descriptions in the standard record can provide default descriptions so that such details need not be repeated here. |
| Type | xs:NMTOKEN |
| Properties | content: simple |
| Used by | Complex Type vr:Interface |
| Source | <xs:attribute name="role" type="xs:NMTOKEN"><br><xs:annotation><br><xs:documentation>A tag name the identifies the role the interface plays in the particular capability. If the value is equal to "std" or begins with "std:", then the interface refers to a standard interface defined by the standard referred to by the capability's standardID attribute.</xs:documentation><br><xs:documentation>For an interface complying with some registered standard (i.e. has a legal standardID), the role can be match against interface roles enumerated in standard resource record. The interface descriptions in the standard record can provide default descriptions so that such details need not be repeated here.</xs:documentation><br></xs:annotation><br></xs:attribute> |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |

## Attribute vr:Capability / @standardID

| | |
|---|---|
| Namespace | No namespace |
| Annotations | A URI identifier for a standard service.<br><br>This provides a unique way to refer to a service specification standard, such as a Simple Image Access service. The use of an IVOA identifier here implies that a VOResource description of the standard is registered and accessible. |
| Type | xs:anyURI |
| Properties | content: simple |
| Used by | Complex Type vr:Capability |
| Source | <xs:attribute name="standardID" type="xs:anyURI"><br><xs:annotation><br><xs:documentation>A URI identifier for a standard service.</xs:documentation><br><xs:documentation>This provides a unique way to refer to a service specification standard, such as a Simple Image Access service. The use of an IVOA identifier here implies that a VOResource description of the standard is registered and accessible.</xs:documentation><br></xs:annotation><br></xs:attribute> |
| Schema location | http://www.ivoa.net/xml/VOResource/VOResource-v1.0.xsd |